

SITE INSPECTION

**SBA SHIPYARD INC.
9040 Castex Landing Road
Jennings, Jefferson Davis Parish, Louisiana**

CERCLIS Number: LAD008434185



**Prepared in cooperation with the
U.S. Environmental Protection Agency, Region 6**

August 6, 2014

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SIGNATURE PAGE



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ABBREVIATIONS AND ACRONYMS

° F	Degrees Fahrenheit
µg/L	Micrograms Per Liter
AST	Aboveground Storage Tank
ATSDR	Agency for Toxic Substances and Disease Registry
bgs	Below Ground Surface
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
Cr	Chromium
EPA	United States Environmental Protection Agency
GAC	Granulated Activated Carbon
GPS	Global Positioning System
HASP	Health and Safety Plan
HRS	Hazard Ranking System
IDW	Investigative Derived Waste
LDEQ	Louisiana Department of Environmental Quality
LEI	Lamp Environmental Industries, Inc.
LTU	Land Treatment Unit
MCL	Maximum Contaminant Level
mg/L	Milligrams Per Liter
msl	Mean Sea Level
MTBE	Methyl Tert-Butyl Ether
MW	Monitor Well
NPL	National Priorities List
NRC	National Response Center
PAHs	Polyaromatic Hydrocarbons
Pb	Lead
PID	Photo-Ionization Detector
PPE	Portable Point of Entry
QASP	Quality Assurance Sampling Plan
QA/QC	Quality assurance/Quality Control
RCRA	Resource Conservation and Recovery Act

RFI	RCRA Facility Investigation
SAM	Site Assessment Manager
SARA	Superfund Amendments and Reauthorization Act
SCDM	Superfund Chemical Data Matrix
scf/m	standard cubic feet per minute
SI	Site Inspection
SVOCs	Semi-volatile Organic Compounds
SWD	Solid Waste Division
START	Superfund Technical Assessment and Response Team
TAL	Target Analyte List
TCL	Target Compound List
TDD	Technical Directive Document
TDL	Target Distance Limit
TSS	Total Suspended Solids
VOC	Volatile Organic Compound

1 INTRODUCTION

Dynamac Corporation (Dynamac) a Superfund Technical Assessment and Response Team (START-3) contractor was tasked by the U.S. Environmental Protection Agency (EPA), Region 6, under Technical Direction Document (TDD) TO-0009-12-10-02 (Appendix A), to conduct a Site Inspection (SI) for the SBA Shipyard Inc. site (CERCLIS No. LAD008434185) located at 9040 Castex Landing Road, Jennings, Jefferson Davis Parish, Louisiana (LA). See Figures 1 and 2 for the site location and areas of interest at SBA Shipyard. This SI is conducted under authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA). The purpose of this investigation is to collect information concerning conditions at the SBA Shipyard sufficient to:

- fill data gaps identified in the Preliminary Assessment report, including further characterization of on-site sources, and determination of impacts to on-site groundwater;
- assess the threat posed to human health and the environment by the site, and determine the potential for a release of hazardous constituents into the environment;
- determine the need for additional investigation under CERCLA or other authority, and, if appropriate, support site evaluation using the Hazard Ranking System (HRS) for proposal to the National Priorities List (NPL); and
- provide documentation necessary to support a decision by the EPA Region 6 Site Assessment Manager (SAM) regarding the need for further action under CERCLA and SARA.

The specific objectives and tasks for the SBA Shipyard SI, as identified by the EPA SAM, are to:

- 1) develop a work plan/cost estimate for completing a SI;
- 2) develop a Quality Assurance Sampling Plan (QASP);
- 3) prepare a Health and Safety Plan (HASP);
- 4) prepare documents for procurement of samples using the Houston EPA Laboratory;

- 5) collect and analyze samples from various waste streams and source material at the site;
- 6) conduct limited survey and sampling of the area surrounding the site in order to verify potential pathway targets and off-site conditions; and
- 7) prepare an SI report for the site, including analytical tables comparing concentrations of contaminants with Louisiana RECAP standards and EPA Regional Screening Levels (MSSLs).

To accomplish the objectives, START-3 collected soil samples at 13 locations at up to 16 feet below ground surface (bgs) to identify the source material and contamination at the site, collected groundwater at 4 on-site locations to assess migration of contamination in the groundwater pathway, and collected 3 surface water samples and 11 sediment samples to assess migration of contamination in the surface water pathway.

The SI report was developed according to the EPA Guidance for Performing Site Inspections Under CERCLA (EPA540-R-92-021, Directive 9345.1-05), 40 CFR Part 300, Hazard Ranking System (HRS) Final Rule, the HRS Guidance Manual, and the Superfund Chemical Data Matrix (SCDM) (References 1 to 4).

Completion of the SI included reviewing existing site information, determining regional characteristics, collecting receptor information within the range of site influence, executing a sampling plan, and producing this report. The report is organized as follows:

- Section 1, Introduction – authority for performance of this work, goals for the project, and summary of the report contents;
- Section 2, Site Background – site description, site operations and waste characteristics, and a summary of investigation locations;
- Section 3, Field Activities and Analytical Protocol – summary of the field effort;
- Section 4, Quality Assurance/Quality Control (QA/QC) – summary of the laboratory data;
- Section 5, Analytical Results Reporting and Background Samples – discussion of results reporting criteria and background sample locations and analytical results;
- Section 6, Potential Sources – discussion of site sources, sample locations, and analytical results;

- Section 7, Migration/Exposure Pathways and Receptors – discussion of the migration/exposure pathways, sample locations, and analytical results;
- Section 8, Summary and Conclusions – summary of the investigation and recommendation for the site based on the information gathered during the investigation;
- Section 9, References – numerical listing of the references cited throughout the text;
- Appendix A TDD TO-0009-12-10-02, Amendment A and Amendments 002 to 008;
- Appendix B Photographic Documentation – photographs taken during the sampling event and site visit;
- Appendix C Copy of Logbook – documenting field activities during the SI.
- Appendix D Chain-of-Custody Forms – forms documenting sample chain-of-custody for the sampling event;
- Appendix E Global Positioning System (GPS) Coordinates of Sample Locations – latitude and longitude coordinates of sample locations;
- Appendix F Access Agreements – for properties where samples were collected;
- Appendix G EPA Houston Analytical Data – complete analytical results for all analyses of all samples;
- Appendix H Boring Logs – stratigraphic logs for each of the borings;
- Appendix I Quality Assurance Sampling Plan;
- Appendix J Sampling Data Sheets during the Site Inspection sampling event;
- Appendix K Investigation Derived Waste Manifest

2 SITE BACKGROUND

This section describes the background of the site including location, description, ownership history, operations and source characteristics, previous investigations, and a summary of the site investigation locations.

2.1 SITE LOCATION

Site Name: SBA Shipyard Inc. facility (SBA)
CERCLIS ID No.: LAD008434185
Location: 9040 Castex Landing Road,
Jennings, Jefferson Davis Parish, Louisiana 70546
Latitude (facility entrance): -30° 9' 50.9394" N
Longitude (facility entrance): -92° 36' 57.168" W
Legal Description: Section 19 of Range 2 West, Township 10 South and is located at the end of State Highway 3166 and adjacent to the west bank of the Mermentau River (Reference 5, p. 10)
Congressional District: Louisiana
Site Owners and Contact: 1. Leevac Shipyard, Inc.
P.O. Box 1190
111 Bunge St.
Jennings, LA 70546
337-824-2210
(Appendix F)
Site Contact and Owner: 2. Louis & Suzanne Smailhall
6430 Buffalo Speedway
Houston, TX 77005
713-663-7588

2.2 SITE DESCRIPTION

The SBA Shipyard facility (SBA) is situated on approximately 98 acres of land located in a rural-industrial area, at 9040 Castex Landing Road, Jennings, Jefferson Davis Parish, LA (Figure 1). The facility is located in south Jennings, LA and bordered to the north by residents, south and

west by wetlands, and to the east by the Mermentau River. Access to the property is restricted with fencing and locked gates (Appendix B).

SBA used the site for construction, repair, retrofitting and cleaning of barges since 1965. Except for portions of the property possibly used for livestock grazing there is no known industrial use for the site prior to 1965 (Ref. 6, p. 6). Barges serviced by SBA typically held diesel, coal tar, crude oil, gasoline and asphalt.

Wastes from the barge cleaning operations were managed in a waste management area that included four impoundments, a land treatment unit (LTU) and storage tanks. Figure 4 provides a layout of the site features and waste management areas. The wastes from barges consisted of petroleum hydrocarbons. The hydrocarbons were separated from the water into surface impoundments that were known as the Oil Pit, Water Pit 1, Water Pit 2 and Water Pit 3 (Ref. 5, p. 26). Water was recycled to barge cleaning and some of the water was converted to steam for the cleaning operations. Aboveground oil/water separators and storage tanks eventually replaced the functions of the pits (a.k.a. surface impoundments) (Ref. 6, pp. 8, 9).

START-3 conducted a site reconnaissance inspection at the SBA Shipyard on December 11, 2012. Brenda Cook, EPA Site Assessment Manager (SAM), Mark Miller and Tommy Dolan, LDEQ representatives accompanied START-3 on the inspection. The facility is inactive and abandoned. Access to the property is restricted with fencing and locked gates. It is possible that trespassing may occur from the adjacent river. Sheep and cattle grazing were observed on the property. Tar-like material was observed in soils up to a depth of 3 to 4 feet below ground surface (bgs) near the onsite ditches. Evidence of the former pits and former land treatment unit were not observed during the reconnaissance. Four monitoring wells were present on the western portion of the property. A partially buried barge, an asphalt tank, and partially scrapped metal from a former 10,000 barrel tank remained onsite (Ref. 7, p.11).

2.3 SITE OWNERSHIP HISTORY

SBA Shipyards, Inc. site was used for construction, repair and cleaning of barges and other vessels since the mid-1960s. In 1993, SBA Shipyards leased approximately 30 acres of the facility to Leevac Marine. Since that time, Leevac Marine purchased the portion of the facility

used for construction and repair of barges and other vessels (Ref. 5, p. 11). Ownership contact information is provided in Section 2.1.

2.4 SITE OPERATIONS AND SOURCE CHARACTERISTICS

During SBA operations, wastes included oil, wax, water, sludge, chlorinated solvents, diesel, crude and gasoline. Wastes were managed in a waste management area that included four impoundments, a land treatment unit (LTU) and storage tanks. Hydrocarbons were separated from the water into surface impoundments known as the Oil Pit, Water Pit 1, Water Pit 2 and Water Pit 3 (Ref. 5, p. 26). Water was recycled to barge cleaning and some of the water was converted to steam for the cleaning operations. Aboveground oil/water separators and storage tanks eventually replaced the functions of the pits (a.k.a surface impoundments).

Regulatory History

In 1980, SBA submitted a RCRA Part A Application to EPA indicating that SBA did not treat, store or dispose of hazardous waste. In late 1989, SBA began remediation activities on the four impoundments (Sources 3, 4, 5 and 6) that were in service since 1968. Visual indications of the possible presence of contamination were observed during subsurface investigations conducted between November 1989 – February 1990 by SBA contractors. In addition, four monitor wells were also installed at the time. In 1990, SBA submitted a notification to LDEQ as generator of hazardous waste. Subsurface contamination was observed at the SBA site by LDEQ on February 1990. In August 1990, the LDEQ, Solid Waste Division (SWD) issued an Order (OC-159) to SBA to close the waste management units. A memo was written in July 1994 that either LDEQ HWD or EPA (Ref. 6, pp. 45-49) would handle closure activities for the SBA site. In 1994 the EPA Region 6 RCRA Enforcement Branch assumed the role for regulatory authority for the site and SBA hired a contractor to conduct a RCRA Facility Investigation (RFI). SBA submitted an RFI work plan in 1996 (Ref. 10). In December 2002 EPA issued Order and Agreement for Interim Measures/Removal Action (IM/RA) of Hazardous/Principal Threat Wastes at SBA Shipyards, Inc., pursuant to Resource Conservation Recovery Act (RCRA) Section 3008(h) (Ref. 5, pp. 7 and 9).

On December 11, 2012 START-3 and Brenda Cook, EPA Site Assessment Manager (SAM), accompanied by Mark Miller and Tommy Dolan, LDEQ representatives, conducted a site reconnaissance inspection at the SBA Shipyard. Tar-like material was observed in soils up to a depth of 3 to 4 feet below ground surface (bgs) near the onsite ditches. Evidence of the former pits and former land treatment unit were not observed during the reconnaissance. Four monitoring wells were present on the western portion of the property. A partially buried barge, an asphalt tank, and partially scrapped metal from a former 10,000 barrel tank remained onsite (Ref. 7, p.11).

2.4.1 Sources

Figure 4 provides the approximate layout of the sources located at SBA Shipyard. Sources at SBA Shipyard include the following:

- Source No. 1 - partially buried barge. The barge is approximately 250 feet (ft.) by 50 ft. The steel barge is located on the southeast portion of the property, north of a designated wetland area. Waste oil and fluids from the barge are being released into the aforementioned wetlands (Ref. 7, p. 56-57). An anonymous caller notified the National Response Center (NRC) in October 2012 that the barge was being scrapped and oil was being discharged to the surrounding soils. The material was also allowed to burn (Ref. 8, p. 2). LDEQ conducted an investigation and reported evidence of the scrapping efforts and that the burning of oil was extinguished (Ref. 9, p. 2).
- Source No. 2 - horizontal steel, aboveground storage tank (AST). The tank is located approximately 300 feet northwest of the barge. It allegedly contains approximately 50,000 pounds of solid asphaltic material. No secondary containment features are associated with the AST.
- Source No. 3 - Former Oil Pit (surface impoundment). The dimensions were approximately 160 ft. x 100 ft. x 6 ft. and contained approximately 3,600 cubic (cu) yards of oily sludge (Ref. 6, p. 8). The oily wastes from the barge cleaning operations was separated from the water and pumped into this surface impoundment. There is

no documentation to indicate that this source was lined or had any other containment features when it was in operation.

- Source No. 4 – Former Water Pit 1 (surface impoundment). The dimensions were approximately 160 ft. x 100 ft. x 15 ft. The estimated volume was 6,900 cubic yards (Ref. 6, p. 8). There is no documentation to indicate this source was lined or had any other containment features when it was in operation.
- Source No. 5 – Former Water Pit 2 (surface impoundment). The dimensions were approximately 85 ft. x 75 ft. x 6 ft. and had an estimated volume of 700 cubic yards (Ref. 6, p. 8). There was no documentation to indicate that this source was lined or had any other containment features when it was in operation.
- Source No. 6 - Former Water Pit 3 (surface impoundment). The dimensions were approximately 283 ft. x 55 ft. x 6 ft. and had an estimated volume of 600 cubic yards (Ref. 6, p. 9). There was no documentation to indicate that this source was lined or had any other containment features when it was in operation.
- Source No. 7 - Former land treatment unit (LTU). The LTU was located in the western portion of the site (Figure 4). It had dimensions of approximately 190 ft. x 93 ft. x 3 ft. and estimated to contain approximately 2,000 cu yards of solidified sludge (Reference 6, p. 9). The LTU was used to further biotreat stabilized sludge that was removed from Water Pit 1 (Ref. 6, p. 9). Wastes from the barge cleaning operations were managed in a waste management area that included four impoundments and LTU. Approximately one-third of the material was placed in the LTU. The material in the LTU was periodically disked until 1993 to promote bioremediation (Ref. 6, pp. 6-8). There was no documentation to indicate that this source was lined or had any other containment features when it was in operation.
- Source No. 8 - Barge Slip. Located off the Mermentau River. No operational or regulatory information is available for this source. It has dimensions of approximately 1700 ft. x 200 ft. (Figure 4).

- Source No. 9 - Dry Dock. Located north of the barge slip. No sampling or other information is known or available about this source. It has dimensions of approximately 500 ft. x 250 ft. (Figure 4).

2.5 PREVIOUS INVESTIGATIONS

Starting in 1989, SBA made attempts to bio-remediate and close the impoundments. In 1991, the bioremediation was determined to be unsuccessful. Water and oil were pumped from Water Pit 1 to the storage tanks. The sludge in Water Pit 1 was solidified with fly-ash and lime. Approximately one-third of the material was placed in the LTU. The remaining material in Water Pit 1 was piled at the east end of Water Pit 1. Accumulated precipitation was periodically pumped from the west end of Water Pit 1 to storage tanks. The material in the LTU was periodically disked until 1993 to promote bioremediation (Ref. 6, pp. 6-7, and 45-49).

Interim removal activities were conducted from March 2001 through January 2005 under an EPA December 2002 Order and Agreement for Interim Measures/Removal Action (IM/RA) of Hazardous/Principal Threat Wastes at SBA Shipyards, Inc., pursuant to Resource Conservation Recovery Act (RCRA) Section 3008(h). Approximately 33.8 million pounds of oils, waxes and sludges, pumpable oily material and oily tank heels, 70 tons of contaminated debris and 88 tons of recyclable scrap steel were removed from the site (Ref. 5, pp. 7 and 9).

As part of the IM/RA, the Oil Pit and wastes from the storage tanks were stabilized and solidified for off-site disposal. Approximately 750,000 gallons of uncontaminated pond water were pumped from the former Water Pit to the drainage ditch that drains to the Mermentau River. The emptied Water Pit was then used to receive treated storm water from the partially buried barge. Pumpable oil materials were removed from the partially buried barge; which was then used to store contaminated storm water prior to treatment and discharge to the emptied Water Pit. Water from the barge was treated by sand filtration, followed by granulated activated carbon (GAC). The treated water was then pumped to the Water Pit 1, analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs) and Total Suspended Solids (TSS) and discharged (Ref. 5, p. 423). The Water Pit was closed by excavating a six - foot gap in the berm to the "Mermentau River bottomland" directly east of pit (Ref. 5, pp. 7-11).

The partially buried barge, an asphalt tank, and partially scrapped metal from a former 10,000 barrel tank remained onsite after the IM/RA activities were conducted (Ref. 6, pp. 44-49).

The IM/RA activities were complete in 2005. LDEQ conducted periodic field investigations of the property since 2005 to document facility conditions (Ref. 5, p.7). Since closure in 2012, tar-like material was observed by EPA and LDEQ in soils up to a depth of 3 to 4 feet below ground surface (bgs) near the onsite ditches (Ref. 10, p. 2).

2.6 SUMMARY OF SI INVESTIGATION LOCATIONS

START developed a Quality Assurance Sampling Plan (QASP) for the sampling effort conducted at the site as part of the EPA Site Inspection (SI) (Appendix I). The QASP proposed the collection of subsurface soil samples from borings at 13 designated locations, up to 2 samples per location up to 16 feet deep, to further characterize the soil as a source at the site; groundwater samples from the 4 onsite monitoring wells and 10 off-site residential wells; sediment samples on and off-site at 10 locations; surface water samples at 3 locations to assess migration to the surface water pathway; and a waste sample collected at 1 location inside the barge.

It was determined during the SI that the off-site residents along Castex Landing Road (north of the site) are on municipal water and no longer use private wells for drinking water; therefore no off-site residential groundwater water samples were collected (Ref. 12, p. 2, and Figure 6). An additional waste sample (sample number SBA-038) was collected from an oily matrix substance leaking from a dilapidated warehouse shed located west of the buried barge (Figure 5). In summary, the following samples were collected during the SI:

- Soil samples – 13 locations;
- Groundwater samples – 4 locations;
- Sediment samples – 11 locations;
- Surface water – 3 locations; and
- Waste sample – 2 locations.

Locations of the samples collected are shown in Figure 5. Appendix J presents the samples, sample numbers and location descriptions. START performed photographic and written documentation of sampling activities (Appendices B and C, respectively).

3 FIELD ACTIVITIES AND ANALYTICAL PROTOCOL

The QASP developed for the SI describes the sampling strategy, sampling methodology, and analytical program used to investigate potential hazardous substances, sources and potential receptors (Appendix I). With few exceptions, the field activities were conducted in accordance with the approved QASP. Deviations from the QASP are described, when applicable, in this section and in the sampling location discussions in Section 5 (Analytical Results Reporting and Background Samples) and Section 6 (Potential Sources).

The field sampling event was conducted from August 19, 2013 through August 22, 2013. A total of 55 samples, inclusive of 11 background samples (8 subsurface soil, 2 sediment, 1 surface water), and 6 trip blank samples were collected during the sampling event. Sample types and methods of collection are described below. A list of all samples collected for laboratory analysis during this sampling event is in Appendix J. Photographic documentation of the field activities is included as Appendix B.

Alphanumeric identification numbers applied to each sample (e.g., SBA-001 = SBA Shipyard – sample location 001) are used in the report as sample location identifiers. Sample locations are shown in Figure 5.

This section describes sampling methodology, analytical protocol, global position system measurements, and investigation-derived waste.

3.1 SAMPLING METHODOLOGY

Sampling methods used for each sample type are described below.

3.1.1 Soil Sampling

Soil samples were collected at depths of up to 16 feet bgs below the sand and gravel layer over the site (Appendix H). START collected subsurface soil samples from borings at 13 locations on the site (Figure 5; Tables 5 to 8). Sample locations were focused on activity areas, including areas where the remediated surface impoundments and land treatment unit were located, and from a background location.

Samples were collected using a direct push device (Geoprobe) to penetrate the gravel/sand layer at the surface and extended to a depth of up to 16 feet bgs, or until groundwater was encountered (Appendix H). Soil in the cores was screened visually and with a photo-ionization detector (PID) on a RAE Systems MultiRAE, those increments of the cores with the highest readings were selected for analysis. Stainless steel spoons were used to transfer the soil from the cores into the sample containers. A total of 33 samples were submitted for analysis, including 2 field duplicates. A START geologist logged the borings (Appendix H).

Samples were shipped to U.S. EPA Laboratory in Houston, TX for analysis for Target Compound List (TCL) and Target Analyte List (TAL) constituents (Appendix I).

3.1.2 Surface Water/Sediment Sampling

START collected surface water grab samples from 3 locations (background and two downstream locations) along the Mermentau River, which is classified as a perennial surface water body (Figures 4 and 5). Sediment grab samples were collected from 5 locations along the Mermentau River and the wetlands located south of the site (Figures 4 and 5).

Surface water samples were collected using a beaker on a metal pole and poured directly into the sample containers. Field parameters of pH, temperature, conductivity, turbidity, dissolved oxygen and oxidation/reduction potential were collected for each surface water sample (Appendices I and J).

Sediment samples were collected using stainless steel spoons, Ponar dredge, or a 3-ft direct push acetate sleeve (sample retrieval tube with a rubber-lined gasket top) and transferred

directly to the sample containers. Any of the three sampling methods were used depending on the access to river, dry dock, barge slip, or edge of the wetland (Appendix I).

A total of 4 surface water and 12 sediment samples were submitted for analysis, including 1 field duplicate of each matrix. Samples were shipped to the U.S. EPA Laboratory in Houston for TCL and TAL analyses (Appendix D & G).

3.1.3 Groundwater Sampling

START collected 4 groundwater samples from the on-site monitoring wells from the western portion of the property (Figure 5). Note that during the SI, START discovered an additional monitoring well southeast of Source No. 6 and adjacent to the west side of the wetland (Figure 4). This monitor well was not identified during the EPA/START site reconnaissance on December 2012 and was not sampled during the SI sampling event (Appendix J).

Groundwater samples were collected using low-flow techniques through a peristaltic pump at Monitor Wells 1, 3 and 4 (MW 1, MW 3, and MW 4) directly into the sample containers (Figures 4 and 5). A groundwater sample from Monitor Well 2 (MW 2) was collected via a disposable bailer because the monitor well was exposed/uncovered, and the groundwater exhibited an oily-like matrix when collected (Figures 4 and 5). Prior to sample collection, the monitoring wells, except MW 2, were purged until the indicator parameters of pH, conductivity, temperature and turbidity stabilized (Appendix J). No duplicate sample was collected for the groundwater as the samples collected for the surface water was used as a duplicate for this matrix.

START did not collect groundwater samples from any of the residential wells north of the property that were proposed for sampling in the QASP. It was determined during the SI that the off-site residents along Castex Landing Road (north of the site) are on municipal water and no longer use private wells for drinking water; therefore no off-site groundwater water samples were collected (Ref. 12, p. 2; and Figure 6).

Samples were shipped to the U.S. EPA Laboratory in Houston for analysis for TCL and TAL constituents (Appendix D & G).

3.1.4 Waste Sampling

START collected two (2) waste samples during the SI. START collected one waste sample from the buried barge using stainless steel spoons and directly into the sampling jars (Appendix I; Figures 3 to 5). START also collected an additional waste sample (sample number SBA-038), from an oily matrix leaking out of a dilapidated warehouse shed, located west of the buried barge. This sample was not originally planned in the QASP (Appendix I). The waste sample was collected using a stainless steel spoon at 0-3 inches bgs and placed directly into the sampling jar. In addition, source samples were collected from the Barge Slip - Source No. 8 and Dry Dock - Source No. 9. These samples were collected by the same method as the sediment samples.

Samples were shipped to the U.S. EPA Laboratory in Houston for analysis for TCL and TAL constituents (Appendix D & G).

3.2 ANALYTICAL PROTOCOL

Samples were processed and shipped to the U.S. EPA Laboratory in Houston on August 19 through 22, 2013.

Analyses conducted on each of the samples collected during the SI are presented in Tables 1 to 10. Analytical methodology is also presented in Appendix G. The following analysis was conducted:

- TAL Total Metals + Mercury by EPA CLP ILM05.3: 4 - surface water samples, 12 - sediment samples, 4 - groundwater samples, 33 - soil samples and 2 - waste samples, including QA/QC samples.
- TAL Cyanides EPA Method 335.4: 4 - surface water samples and 4 - groundwater samples, including QA/QC samples.
- TCL Pesticide/PCB by EPA OLM04.2 – GC/ECO: 4 - surface water samples, 12 - sediment samples, 4 - groundwater samples, 33 - soil samples and 2 - waste samples, including QA/QC samples.

- TCL SVOAs by EPA CLP OLM04.2 – GC/MS: 4 - surface water samples, 12 - sediment samples, 4 - groundwater samples, 33 - soil samples and 2 - waste samples, including QA/QC samples.
- TCL VOAs by EPA CLP OLM04.2 – GC/MS: 4 - surface water samples, 12 - sediment samples, 4 - groundwater samples, 33 - soil samples, 2 - waste samples and 6 - trip blanks, including QA/QC samples.
- Percent (%) solids: 33 - soil samples, including QA/QC samples.

3.3 GLOBAL POSITIONING SYSTEM

Trimble GeoExplorer3 GPS units were used to obtain coordinates for each of the sample locations. Data was processed and corrected utilizing Trimble Pathfinder Office Version 4.10 software. The GPS units utilized the WGS1984 coordinate system. After correction using the Pathfinder Office software, the accuracy of the individual sample points ranged from 0.9 to 2.2 meters. Coordinates of the sampling points are included in Appendix E.

3.4 INVESTIGATION-DERIVED WASTE

Investigation-Derived Waste (IDW) generated during the SI consists of solids and liquids. Solid IDW consists of used dedicated equipment, soil cuttings from subsurface sampling, and paper waste. All waste was double bagged, sealed in a 55-gal steel drum and labeled. Non-dedicated sampling equipment, such as the ponar dredge, was decontaminated prior to use and between each use generating both solid and liquid waste. IDW was generated from the decontamination procedures and the liquid IDW was sealed in a 55-gal steel drum and labeled. All IDW was picked up on December 12, 2013 and disposed of via Lamp Environmental Industries, Inc. (LEI) to an off-site disposal facility (Appendix K).

4 QUALITY ASSURANCE/QUALITY CONTROL

QA/QC data are necessary to determine precision and accuracy and to demonstrate the absence of interferences and/or contamination of sampling equipment, glassware, and reagents. Specific QC requirements for laboratory analyses are incorporated in the *USEPA Contract*

Laboratory Program Statement of Work for Inorganics Analyses, Multi-Media, Multi-Concentration. These QC requirements, or equivalent requirements, were followed for analytical work on the SBA Shipyard SI.

Analyses were performed by U.S. EPA Laboratory located in Houston, TX. All data from analyses performed at the U.S. EPA Laboratory were reviewed and validated by at the Houston EPA Laboratory. Data qualifiers were applied as necessary according to the following EPA guidance:

- *USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review.*

When necessary, laboratory- and method-specific QC criteria were applied to the data.

4.1 SATISFACTION OF DATA QUALITY OBJECTIVES

The following EPA guidance document was used to establish data quality objectives (DQOs) for this SI:

- *Data Quality Objectives Process for Superfund, Interim Final Guidance, EPA 540-R-93-071.*

The EPA Site Assessment Manager determined that definitive data without error and bias determination would be used for the sampling and analyses conducted during the field activities. The data quality achieved during fieldwork produced sufficient data that meet the DQOs stated in the START designed SBA Shipyard QASP (Appendix I).

4.2 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

QA samples (6 trip blanks) were collected for this project. Trip blanks were analyzed for VOCs. QC samples included blind duplicate and matrix spike (MS)/matrix spike duplicate (MSD) samples. Blind duplicate samples were collected at a frequency of one in ten samples per matrix (4 total). MS/MSD samples were collected at a frequency of one in every twenty samples per matrix (3 total). These QC samples were analyzed for TCL: VOAs; SVOAs; Pesticide/PCBs; TAL Metals/Mercury and Cyanide; and percent solids.

4.3 PROJECT-SPECIFIC DATA QUALITY OBJECTIVES

The field team was able to meet DQOs for the project.

4.4 LABORATORY QUALITY ASSURANCE/QUALITY CONTROL PARAMETERS

4.4.1 Holding Times

All samples were analyzed within holding time limits (Appendix G).

4.4.2 Trip Blanks

Six trip blanks were collected for VOC analyses only and met the frequency criteria. Acetone in sample SBA-15GW (water matrix) is flagged FB because acetone was detected in trip blank; however, all 6 trip blanks show acetone as non-detect with a reporting limit of 30. Sample SBA-15GW had acetone detected at 15.1; therefore, acetone could have been detected in trip blank below the reporting limit but this concentration is not in report (Appendix G).

5 ANALYTICAL RESULTS REPORTING AND BACKGROUND SAMPLES

This section describes the reporting and methods applied to analytical results presented in Sections 6 (Sources) and 7 (Receptors) of this report, and discusses background locations and sample results. Appendix J lists all samples collected for laboratory analysis.

5.1 ANALYTICAL RESULTS EVALUATION CRITERIA

Analytical results presented in the analytical summary tables show all analytes/compounds detected above laboratory detection limits in bold type. Analytical results indicating significant/elevated concentrations of contaminants in source samples (Section 6) and target samples (Section 7) with respect to background concentrations are shown in highlighted yellow and bold type. For the purposes of this investigation, significant/elevated concentrations are those concentrations that are:

- Equal to or greater than the sample's Contract Required Quantitation Limit (CRQL) or the Sample Quantitation Limit (SQL) when a non-CLP laboratory was used; and
- Equal to or greater than the background sample's CRQL or SQL when the background concentration was below detection limits; or
- At least three times greater than the background concentration when the background concentration equals or exceeds the detection limits.

In addition, detected concentrations will be compared to Louisiana Risk Evaluation/Corrective Action Program (RECAP) standards and /or EPA Media Specific-Screening Levels (MSSLs). RECAP and MSSLs are incorporated into the tables as applicable.

The analytical summary tables in Appendix G present all detected analytes/compounds, but only those detected analytes/compounds at potential sources and Receptors meeting the significant/elevated concentration criteria are discussed in the report text. When samples were diluted for re-analysis at a laboratory, the dilution results were considered for evaluation and are provided in the tables.

5.2 BACKGROUND SAMPLES

Background samples were collected for each of the naturally occurring media from which SBA Shipyard samples were collected. These media are subsurface soil, sediment and water.

5.2.1 Background Surface/Subsurface Soil Samples

5.2.1.1 Sample Locations

Eight (8) intervals from one on-site background soil location were collected by soil boring at SBA-001, which is approximately 450 feet southeast of the facility entrance (Figures 4 and 5). Sample location SBA-001 is upgradient relative to groundwater flow. The GPS coordinate for location SBA-001 is 30.163289322° north latitude, -92.61456637° west longitude (Appendix E). The eight (8) intervals from the background subsurface soil sample were collected at 2 ft. intervals (Appendix J):

- SBA-001-02 (0-2 ft bgs)
- SBA-001-24 (2-4 ft. bgs)

- SBA-001-46 (4-6 ft. bgs)
- SBA-001-68 (6-8 ft. bgs)
- SBA-001-10 (8-10 ft. bgs)
- SBA-001012 (10-12 ft. bgs)
- SBA-001-14 (12-14 ft. bgs)
- SBA-001-16 (14-16 ft. bgs)

5.2.1.2 Sample Results

Numerous polycyclic aromatic hydrocarbons (PAHs) were detected in the 0-2 foot and 4-6 foot intervals including: acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene (Table 1) (Appendix G). No PAHs were detected in the 2-4 foot interval, or the remaining at depth intervals, suggesting potential surface contamination from either on-site sources or other on-site activities related to the transiting across the site by on-site workers demolishing the Partially Buried Barge (Source 1).

No VOCs were detected within any of the intervals sampled.

Numerous inorganic analytes were detected in the background samples throughout each interval including: aluminum, arsenic, barium, beryllium, cadmium, chromium, copper, lead, magnesium, manganese, mercury, vanadium and zinc (Table 1). Complete analytical results are included in Appendix G.

5.2.2 Background Sediment Samples

5.2.2.1 Sample Locations

One off-site background sediment sample, SBA-028SD, was collected from the bank of the Mermentau River at location SBA-028, which is approximately 275 feet northeast of the facility entrance (Figure 4 and 5). The GPS coordinate for sample location SBA-028 is 30.16500597° north latitude, -92.6154237° west longitude (Appendix E).

5.2.2.2 Sample Results

No organic compounds were detected above the reporting limit in the background sediment sample (Table 2). Inorganic metals, including barium, iron, magnesium, manganese, and lead are detected at concentrations above the analytical reporting limit, but are below both the RECAP and EPA MSSL standards. Complete analytical results are included in Appendix G.

5.2.3 Background Water Samples

5.2.3.1 Sample Locations

One off-site background surface water sample, SBA-028SW, was collected from the Mermentau River at location SBA-028, which is approximately 275 feet northeast of the facility entrance (Figure 4 and 5). The GPS coordinate for sample location SBA-028 is 30.16500597° north latitude, -92.6154237° west longitude (Appendix E).

5.2.3.2 Sample Results

No semi or volatile organics analytes were detected in the sample. Inorganic metals, including arsenic, barium, iron, magnesium, and manganese are detected at concentrations above the analytical reporting limits; however, none were above the Federal EPA Maximum Contaminant Levels (MCLs) (Table 2). Complete analytical results are included in Appendix G.

6 POTENTIAL SOURCES

This section describes potential sources, sample locations, and analytical results of SBA Shipyard samples obtained from potential sources. Laboratory data sheets of analytical results for all samples are provided in Appendix G. Analytical results are summarized in Tables 4, 5, 6 7 & 8. GPS locations for all samples are listed in Appendix F.

6.1 SOURCE – Partially Buried Barge

Source No. 1 is a partially dismantled buried barge open to the environment. The barge is approximately 250 ft. by 50 ft. The steel barge is located on the southeast portion of the property, north of a designated wetland area (Figures 4). Waste oil and liquids from the barge are being released into the wetlands (Ref. 7, p. 51, and Figure 3).

6.1.1 Sample Locations

During the SI, one (1) waste sample was collected at location SBA-040 (Figure 5). Sample SBA-040 was collected on the western edge of the buried barge. The material in the barge has caught fire in the past during demolition (Ref. 8). The sample color was black and was characterized as asphaltic, tarry, and oily, as seen in the photographs presented in Appendix B. Odors were present during the SI sampling event.

6.1.2 Sample Results

Waste Sample SBA-040 was analyzed for VOAs, SVOAs, Pesticides, PCBS and TAL Total Metals/Mercury (Appendix G). Analytical results are summarized in Table 4.

Organic analysis detected polycyclic aromatic hydrocarbons (PAHs) at percent concentration in the waste from the barge. Those with some of the highest percent concentrations include: anthracene at 4.6%, phenanthrene at 1.7%, fluoranthene and fluorene at 0.7%, acenaphthene at 0.3%, and benzo(a)anthracene at 0.2%. Table 4 provides a complete list of organics detected in this sample. These same constituents are detected in former surface impoundments (Source 3, 4, 5, 6, 7, 8 and 9) used in the barge cleaning process.

As evidenced by the strong odor in the barge area, VOCs were detected in the sample including: cyclohexane, benzene, methcyclohexane, toluene, tetrachloroethene, ethylbenzene, xylene, isopropylbenzene, 1,2-dichlorobenzene, and vinyl chloride. Concentrations were detected up to 87 times greater than the reporting limit.

Inorganics arsenic, lead, and mercury were also detected in concentrations greater than the reporting limits.

6.2 SOURCE - Surface Impoundments

Surface Impoundments are represented by Sources No. 3, 4, 5 and 6 (Figure 4). Impoundments 3, 4 and 5 are covered and no longer functioning. Impoundment 6 is not capped or covered and contains water.

- Source No. 3 is a former Oil Pit (surface impoundment). The dimensions were approximately 160 ft. x 100 ft. x 6 ft. and estimated to contain approximately 3,600 cu yards of oily sludge (Ref. 6, p. 8).
- Source No. 4 is the former Water Pit 1 (surface impoundment). The dimensions were approximately 160 ft. x 100 ft. x 15 ft. The estimated volume was 6,900 cubic yards (Ref. 6, p. 8).
- Source No. 5 is the former Water Pit 2 (surface impoundment). The dimensions were approximately 85 ft. x 75 ft. x 6 ft. and had an estimated volume of 700 cubic yards (Ref. 6, p. 8).
- Source No. 6 is the former Water Pit 3 (surface impoundment). The dimensions are approximately 283 ft. x 55 ft. x 6 ft. and an estimated volume of 600 cubic yards (Ref. 6, p. 9).

6.2.1 Sample Locations

Seventeen (17) subsurface soil samples were collected from the area previously used as Source Nos. 3, 4 and 5. Samples were collected using a direct push drill rig. One (1) sediment samples was collected from Source No. 6. This sample was collected using a hand-coring device (Figures 4 & 5, Appendices H and J). The following samples were collected:

- SBA-002PD (6-8 ft. bgs) – collected at highest PID reading; chemical odor (Table 5).
- SBA-002WT (10-12 ft. bgs) – collected above water table; chemical odor (Table 5).
- SBA-003-68 (6-8 ft. bgs) - chemical odor (Table 5).
- SBA-003WT (10-12 ft. bgs) – collected above water table; chemical odor (Table 5).
- SBA-004-24 (2-4 ft. bgs) – heavy chemical odor, staining with a sheen (Table 6).
- SBA-004WT (12-14 ft. bgs) – collected above water table; chemical odor, sheen present (Table 6).

- SBA-005PD (12-14 ft bgs) – collected at the highest PID reading (Table 6).
- SBA-005WT (14-16 ft. bgs) – collected above water table; (Table 6).
- SBA-006-24 (2-4 ft. bgs) – (Table 6).
- SBA-006WT (14-16 ft. bgs) – collected above water table (Table 6).
- SBA-009-02 (0-2 ft bgs) – asphalt like material, slight odor (Table 7).
- SBA-009WT (12-14 ft. bgs) – collected above water table; chemical odor (Table 7).
- SBA-010PD (6-8 ft bgs) – collected at the highest PID reading (Table 7).
- SBA-10WT (8-10 ft. bgs) – collected above water table (Table 7).
- SBA-011PD (4-6 ft bgs) – collected at the highest PID reading (Table 8).
- SBA-011WT (8-10 ft. bgs) – collected above water table; chemical odor (Table 8).
- SBA-032SD – Sediment sample from Source No. 6; oily matrix (Table 4).

6.2.2 Sample Results

The soil sample results from these source areas were compared to the corresponding interval from the background soil levels established (Table 1). Analysis detected PAHs in concentrations up to 1.6 percent of anthracene. Other PAHs such as acenaphthene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, phenol, and pyrene are detected at greater than three times background levels and exceed either the RECAP values, MSSSLs, or both. Constituents were detected at 0-2 ft. and at depths between 4 to 16 ft. bgs (Tables 5-8). This is consistent with identification of buried impoundments used in the barge cleaning operations. These constituents are also detected in other sources on site including the Barge Slip, Dry Dock and Partially Buried Barge (Sources 8, 9, and 1 respectively).

In addition, numerous VOCs such as benzene and toluene were detected in the 2-4 ft. bgs interval in concentrations above background and reporting limits (Table 6). In addition, benzene is detected above the RECAP level (Table 3). Metal concentrations from the 0-2 ft. and 2-4 ft. bgs intervals were detected at concentrations similar to background level (Table 1 and Table 6).

6.3 SOURCE - Former Land Treatment Unit

Source No. 7 is the former land treatment unit (LTU). The LTU was present west of the surface impoundments (Figure 4). It had dimensions of approximately 190 ft. x 93 ft. x 3 ft. and was estimated to contain approximately 2,000 cu yards of solidified sludge (Ref. 6, p. 9). The LTU is currently covered with soil.

6.3.1 Sample Locations

Four (4) subsurface soil samples were collected at two (2) locations using a direct push drill rig (Figure 5). Results are summarized in Table 7. The following samples were collected:

- SBA-007WT (8-10 ft. bgs) – collected above water table; chemical odor.
- SBA-008-24 (2-4 ft. bgs) – no stains, no odor.
- SBA-008WT (10-12 ft. bgs) – collected above water table; chemical odor.

6.3.2 Sample Results

Sample No. SBA-007WT and SBA-008WT (at depths of 8 to 12 ft.) contained significant levels of PAHs including: acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, phenol, and pyrene in concentrations greater than three times comparable background soils at these depths (Table 7). Various VOCs were also detected in deeper samples, that are not present in background soils.

Sample SBA-008-24, collected from the 2 to 4 foot interval, did not contain any PAHs which would indicate that the source has an uncontaminated cover greater than 3 feet.

6.4 SOURCE – Barge Slip

Source No. 8 is a Barge Slip located off the Mermentau River at the eastern portion of the site (Figures 3 and 4). It has dimensions of approximately 1,700 ft. x 200 ft. The barge slip contained water during the SI.

6.4.1 Sample Locations

Two (2) sediment samples were collected at two (2) locations within the barge slip (Figure 5). Results are summarized in Table 4. The following samples were collected:

- SBA-024SD – collected at the NW corner of the Barge Slip.
- SBA-025SD – hydrocarbon sheen.

6.4.2 Sample Results

Analysis of the sediments from the Slip detected numerous PAHs such as: acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, phenol, and pyrene above reporting limits and three times the concentration in background sediment levels. Concentrations of PAHs are above the RECAP and EPA MSSL screening levels for industrial soils. The constituents detected are the same as those detected in the waste sample collected from the Partially Buried Barge (SBA-40) used in the barge cleaning process.

Chromium was the only metal analyte detected in this source above reporting limits and background sediment concentrations (Table 4). No VOCs were detected in the samples.

6.5 SOURCE – Dry Dock

Source No. 9 is a Dry Dock located north of Source No. 8, Barge Slip (Figure 4). It has dimensions of approximately 500 ft. x 250 ft. The Dry Dock contained water during the SI.

6.5.1 Sample Locations

Two (2) sediment samples were collected at two locations within the Dry Dock (Figure 5).

Results are summarized in Table 4. The following samples were collected:

- SBA-026SD – sediment sample from NW corner of the Dry Dock Slip.
- SBA-027SD – sediment sample from south side of loading dock; hydrocarbon sheen.

6.5.2 Sample Results

Analysis of the sediments from the Dry Dock (SBA-026SD and SBA-027SD) detected numerous PAHs such as: acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene above analytical reporting limits and three times the concentration in background sediment levels (Table 4 and Table 2). Concentrations of PAHs are above the RECAP and EPA MSSL screening levels for industrial soils. The constituents detected are the same as those detected in the waste sample collected from the Partially Buried Barge (SBA-40) used in the barge cleaning process.

Metals were detected at concentrations similar to background soils and detected above analytical reporting limits (Table 4). No VOCs were detected in the samples.

6.6 SOURCE - Stained Soil

An area of stained soil was observed during the SI near the Alkynes Storage Tank. One sample (SBA-38SL) was collected of the stained area. See Appendix B for photographs of the stained area.

6.6.1 Sample Locations

Sample SBA-38SL was collected 0-3" bgs near the Alkynes Storage Tank, southeast from the corner of the tank area (Figure 5; Appendix J).

6.6.2 Sample Results

Analysis of the soil detected numerous PAHs such as: acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene above analytical reporting limits and three times the concentration in background soil levels (Table 4 and Table 2). Concentrations of PAHs are above the RECAP and EPA MSSSL screening levels for industrial soils. The constituents detected are the same as those detected in the waste sample collected from the Partially Buried Barge (SBA-40) used in the barge cleaning process.

Arcolor-1254 was detected above background levels and above analytical reporting limits (Table 4). Arcolor was not detected in any other locations during this SI sampling event. Inorganic analysis detected lead three times above background at estimated concentrations (Table 4).

7 MIGRATION/EXPOSURE PATHWAYS AND RECEPTORS

The following subsections describe migration pathways and potential receptors within the site's range of influence. This section discusses the groundwater migration pathway, the surface water migration pathway, the soil exposure pathway, and the air migration pathways.

7.1 GROUNDWATER MIGRATION PATHWAY

The target distance limit (TDL) for the groundwater migration pathway is a 4-mile radius that extends from the sources at the site. Figure 6 depicts the groundwater 4-mile TDL.

7.1.1 Geologic Setting

Regional Geology

Regional surface exposures in Jefferson Davis Parish consist of mainly Prairie terraces. The associated surface covers about 84% of this area and consists of clay or mud, silt, sand, and gravel (Ref. 13, p. 2). Alluvium, consisting of clay or mud, sand and gravel make up about 14%

of this Parish; while Chenier Plain, Fresh Marsh, and Intermediate Terraces make up the remaining geologic units in this region. The soils in marshes are soft organic soils or firm, clayey mineral soils (Ref. 14, p. 12).

The average annual total precipitation for Jennings, LA is approximately 56 inches (Ref. 15, p.2).

Site-Specific Geology

Four monitoring wells were installed at SBA in 1989. The reported depths range from 26.9 feet bgs to 30 ft. bgs. They are screened from 15 to 25 ft. bgs (Ref. 6, p. 17). Silty clays and clays containing discontinuous lenses, pockets, and layers of silt or fine sand were encountered during well installation (Ref. 6, pp. 11, 69). The permeability of the units encountered ranged from 1.23×10^{-9} centimeters per second (cm/sec) at a 14-16 ft. bgs interval to 4.52×10^{-9} cm/sec at a 28-30 ft. bgs interval (Ref. 6, p. 15). The wells were installed to monitor the groundwater in the vicinity of the impoundments. They were periodically sampled and analyzed for VOCs and SVOCs. The analytical data in the LDEQ files show that the groundwater in the shallow water bearing unit was contaminated with VOCs and SVOCs (Ref. 6, pp. 23, 24). According to the available documentation, none of the nearby private water wells have been analyzed for VOCs or SVOCs.

A fifth monitor well was discovered by EPA/START during the last day of SI sampling event on August 22, 2013. The monitor well was located along the wetland and south of Source No. 6 (Figure 4; Appendix B). The monitor well was not sampled during the SI.

7.1.2 Aquifer System

Jefferson Davis Parish, LA is located within the Gulf Coastal Plain, which is composed of sediment deposits of recent age laid down in the Gulf of Mexico and in the valleys of streams. The deposits generally consist of fine sand, silt, clay and a few lenses of coarse sand. Limited use aquifers are located in sand zones within these deposits. The Pleistocene deposits which underlie the recent deposits were laid down during glacial retreats. The system of aquifers formed by the Pleistocene deposits has been named the Chicot Aquifer. The aquifer consists of thick deposits of gravel, sand and clay. The material generally becomes coarser with depth.

The sediments forming this plain, slope gently towards the Gulf of Mexico (Ref. 16, pp. 15-18). Groundwater provides fifty-five percent of the water withdrawn and used in Jefferson Davis Parish and is pumped from the Chicot Aquifer System. Of this water withdrawn, 97 percent is mainly used for irrigation, mostly rice; 2 percent for public supply; 0.5 percent for rural uses; and about 0.5 percent for industry (Ref. 14, p. 10). Chicot Aquifer System is the major aquifer system in Jefferson Davis Parish and consists of the upper sand and the lower sand units. The water from the upper sand unit in this system is recharged from the rainfall in Allen Parish. The upper sand unit is where most of the water is withdrawn and are generally of good quality, while the remaining aquifers in the Parish contain salt water. The upper sand unit averages 300 to 400 feet in thickness in sand. From north to south in the Parish, the sand and clay beds thicken. Jefferson Davis Parish has about 500 large producing wells, where irrigation wells are between 300 to 400 feet deep. Household aquifers are only drilled to the top of the aquifer (Ref. 14, p.11).

7.1.3 Drinking Water Receptors

Domestic Drinking Water Receptors

According to the Louisiana Department of Natural Resources (LDNR) water well database, there are eight (8) domestic wells within the ¼-mile radius, seven (7) domestic wells located within the ¼ to ½-mile TDL, and six (6) wells within the ½ to 1-mile TDL of the facility (Ref. 7, p. 30). The wells range from 125 to 200 ft. bgs. The average population per household in Jefferson Davis Parish is 2.62 (Reference 17, p. 2-3). During the SI sampling events, it was verified by the residents that the wells within the ¼-mile radius were inactive and drinking water was supplied by the municipal system (Ref. 12, p. 2).

Municipal Drinking Water Receptors

The town of Mermentau, LA has two municipal supply wells located within the 2 to 3-mile TDL. They are 158 ft. and 230 ft. bgs. The population of Mermentau is 661. Attempts were made to contact personnel in the Mermentau Water Department to ascertain if both wells are equally used; however, the attempts of communication were unsuccessful. It will be assumed that both wells are equally used; therefore, the population served by each well is 330.

The estimated population served by the wells for each distance TDL is summarized in Table 11 (Ref. 7, p. 33).

7.1.4 Sample Locations and Results

On-site monitor wells

START collected groundwater from four (4) existing on-site monitor wells. The existing on-site monitor wells are all west of the designated wetlands and located around Source Nos. 2 to 7. Figure 4 shows the locations of the monitor wells sampled and Figure 5 shows the groundwater sample number associated with these monitor wells.

Sample SBA-014 was collected from Monitor Well (MW) 1, and is located hydraulically upgradient from the other wells and will be considered the background well. The sample did not contain any VOCs or PAHs detected above reporting limits. Arsenic was detected at 2.4 mg/L (Table 9).

Two samples were collected from MW 2, one was an aqueous sample and one was non-aqueous. A layer of free product was observed in the water collected from the well and a strong hydrocarbon odor present (Appendix B and J).

Analysis of the aqueous sample, SBA-015, contained numerous PAHs such as: acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, chrysene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene detected at concentrations ranging from 11,200 ug/kg of naphthalene to 183 ug/kg of benzo (a)anthracene. These levels are significantly above reporting levels and background concentrations. VOCs were detected in the water matrix at concentrations over 60 times greater than reporting limits for analytes such as benzene at 573 ug/kg. The sample also contained arsenic at three times greater than the concentration detected in the background well (Table 9).

The non-aqueous sample contains percent concentrations of PAHs: acenaphthene 1.15%, fluoranthene 2.46%, naphthalene 6.4% and phenanthrene 4.9% (Table 9). These levels are

significantly above reporting levels. VOC and inorganic analysis was not conducted on the non-aqueous sample (Table 9) due to the high concentration of the matrix.

Sample SBA-016 from MW 3 did not contain any PAHs detected above reporting limits. Arsenic and methyl tert-butyl ether (MBTE) were detected above background levels (Table 9).

Sample SBA-017 from MW 4 did not contain any VOCs, PAHs, or inorganics detected above reporting limits (Table 9).

Domestic Wells

No domestic wells were sampled during the SI. It was verified by the residents during the SI sampling event that the domestic wells within the ¼-mile radius were inactive and drinking water was supplied by the municipal system (Ref. 12, p. 2).

7.2 SURFACE WATER MIGRATION PATHWAY

The surface water migration pathway TDL begins at the probable point to entry (PPE) of surface water runoff from the site to a surface water body and extends downstream for 15 miles. Figure 7 depicts the surface water 15-mile TDL.

The Surface Water Migration Pathway, overland/flood migration component assesses the potential for suspected contamination in perennial surface water bodies identified as part of the 15-mile downstream TDL. Identified perennial surface water bodies include streams, rivers, lakes, coastal tidal waters and oceans. The pathway takes into account such factors as distance to the overland flow segment, the nearest surface water body, flood frequencies, drainage area, surface soil type(s), the 2-year, 24-hour rainfall, the size of the source(s) being evaluated, the chemical constituents associated with the sources, and the associated surface water receptors identified within the 15-mile downstream TDL. Surface Water Migration Pathway receptors include the location of the nearest drinking water intakes and associated populations (Drinking

Water Threat), fisheries and the consumption of aquatic human food chain organisms (Human Food Chain Threat), and sensitive environments (Environmental Threat) (Ref. 1-3).

7.2.1 Overland Route

Surface Water Characteristics

The two-year, 24-hour rainfall for the area of the site is approximately 5.0 to 5.5 inches (Ref. 18, p. 3). The site is located in a 100-year floodplain (Ref. 19, p. 2-3).

There are numerous probable point of entry (PPE) along the Mermentau River due to the location and number of the sources in proximity to the river (Figure 3). START collected samples from three of them (SBA-29 and SBA-30 taken from the Mermentau River and SBA-33 from a wetland located along the Mermentau River approximately 30 feet south of the Partially Buried Barge (Table 2 & 10, Figure 5). LDEQ has also reported that contents from the partially buried barge have discharged into the wetlands (Ref. 9)(Ref. 7, pp. 56-57).

Mermentau River flows for approximately 6.63 miles until it enters Lake Arthur. The remainder of the 15-mile surface water pathway is located in Lake Arthur (Figure 7).

According to the US Department of Agriculture (USDA), Web Soil Survey, three major soil classification types exist at the site (Ref. 20, p. 2). The three major soil classification types are Acadia silt loam (AcB), Barbary mucky clay (BBA) and Crowley-Vidrine silt loams (CrA). The soil comprising and present on the west side of SBA Shipyard is CrA. Slope characteristic of the CrA soil is 0 to 1 percent and it is poorly drained. The depth to restrictive features is more than 80 inches. Generally, the depth to the water table characteristic of the soil type is 0 to 18 inches for Crowley silt loam and 12 to 24 inches for Vidrine silts loam. The available water capacity characteristic is very high (about 12.6 inches for Crowley and 11.8 inches for Vidrine). The typical Crowley silt loam profile is 0-17 inches: silt loam; 17 to 73 inches: silty clay, while the typical Vidrine silt loam profile is 0 to 14 inches: silt loam; 14-70 inches: silty clay loam.

The soil present in the northern and middle portion of SBA Shipyard is AcB. Slope characteristic of the soil is 1 to 3 percent and is somewhat poorly drained. The depth to restrictive features is more than 80 inches. Generally, the depth to the water table characteristic of the soil type is about 6 to 18 inches, and the available water capacity characteristic is high (about 10.6 inches).

The typical Acadia silt loam profile is 0-6 inches: silt loam; 6 to 14 inches: silty clay loam; and 14 to 80 inches: silt clay.

The soil comprising the eastern portions, and adjacent to the west bank of Mermentau River, of SBA Shipyard is BBA. Slope characteristic of the soil is 0 to 1 percent and is very poorly drained. The depth to restrictive features is more than 80 inches. Generally, the depth to the water table characteristic of the soil type is about 0 inches, and the available water capacity characteristic is high (about 11.4 inches). The typical BBA profile is 0 to 10 inches: mucky clay; and 10 to 60 inches: clay.

7.2.2 Sample Locations and Results

Surface water and sediment samples were collected from three locations in the Mermentau River (one background and two downstream locations) (Figure 5). Water and sediment samples were collected from a background location away from facility impacts (Figure 5; Table 2). All samples were grab samples and water samples were collected directly into the sample containers.

The background water (SBA-28SW) and sediment (SBA-28SD) samples were collected upstream on the Mermentau River near the facility entrance. No PAHs, VOCs or inorganic compounds were detected in the sediment sample. Inorganic compounds were detected in the water sample (Table 2). Access to the river was from the shore line, which in some places was from a steep gradient, making access difficult.

Down gradient water and sediment samples were collected from two locations: SBA-29 and SBA-30. Constituents associated with on-site sources were detected in the both sediment samples collected from the Mermentau River. SBA-29 was located near the Dry Dock (Source 9) on the Mermentau River (Figure 4). The sediment sample from location SBA-29 contained arsenic and PAHs such as: anthracene (873 ug/kg), benzo(a)anthracene (903 ug/kg), benzo(a)pyrene (1,630 ug/kg), benzo(b)fluoranthene (1,510 ug/kg), benzo(g,h,i)perylene (1750 ug/kg), flouranthene (418 ug/kg), and indeno(1,2,3-cd)pyrene (1,630 ug/kg) that meet observed release criteria (Table 2). These constituents are also documented in sources: Dry Dock (Source 9), Partially Buried Barge (Source 1), and Barge Slip (Source 8). The water sample did not have any PAHs detected (Table 2) (Appendix G).

The water and sediment sample from location SBA-30 was located near the Barge Slip (Source 8) on the Mermentau River (Figure 4). The sediment sample from location SBA-30 contained arsenic and PAHs such as: anthracene (278 ug/kg), benzo(a)anthracene (3,680 ug/kg), benzo(a)pyrene (3,680 ug/kg), benzo(b)fluoranthene (44,150 ug/kg), benzo(g,h,i)perylene (2,990 ug/kg), flouranthene (2,110 ug/kg), and indeno(1,2,3-cd)pyrene (3,490 ug/kg) that meet observed release criteria (Table 2) (Appendix G). These constituents are also documented in sources: Barge Slip (Source 8), Partially Buried Barge (Source 1), and Dry Dock (Source 9). The water sample did not have any PAHs detected (Table 2) (Appendix G).

7.2.3 Drinking Water Receptors

Surface water is not used as a public supply in Jefferson Davis Parish (Reference 14). Drinking water is obtained from either municipal or domestic water wells screened in the Chicot Aquifers (Ref. 14, p. 11). Surface water resource usage occurs within Jefferson Davis Parish, primarily for rice farming (Ref. 14, p.4). It is assumed that water from the 15-mile TDL of the Mermentau River is used as a resource.

7.2.4 Sample Locations and Results

No samples were collected from drinking water receptors.

7.2.5 Human Food chain Receptors

Fishing is common on the Mermentau River, and recreational fishing is likely to exist (Ref. 21, p. 2). The information of the pounds of human food chain organisms caught for consumption is not known, however, it is assumed that at least 1 pound or more are consumed annually within the 15-mile TDL.

7.2.6 Environmental Receptors

According to the Louisiana Department of Wildlife and Fisheries, there are two (2) species of birds (red-cockaded woodpecker – *Picoides boreakus* and bald eagle – *Haliaeetus*

leucocephalus) and one (1) species of mammal (red wolf – *Canis rufus*) that are either federally or state-designated endangered or threatened species in Jefferson Davis and Acadia Parishes (Ref. 21, p. 2-4). The location of the critical habitats for these designated endangered or threatened species has not been obtained.

Wetlands are present along the Mermentau River within the TDL. The estimated wetland frontage is 30 miles (Ref. 7, p. 31).

7.2.7 Sample Locations and Results

Three samples were collected from the wetlands located south of the facility operations (Table 10). SBA-31 was collected southwest of the source areas and is considered the background sample for the wetlands samples. Analysis of the background did not detect any organic or volatile organic constituents. Metals such as lead and arsenic were detected above reporting limits (Table 10).

SBA-33 and SBA-39 were collected southeast of the impoundment areas and south of the Partially Buried Barge (Source 1) and Barge Slip (Source 8) (Figure 5; Table 10). Sample SBA-33 contained concentrations of PAHs such as: anthracene (353,000 ug/kg), benzo(a)anthracene (27,000 ug/kg), benzo(a)pyrene (50,800 ug/kg), benzo(b)fluoranthene (53,200 ug/kg), benzo(g,h,i)perylene (32,900 ug/kg), flouranthene (52,200 ug/kg), and indeno(1,2,3-cd)pyrene (62,000 ug/kg) that meet observed release criteria (Table 10) (Appendix G). Metals arsenic, copper, nickel, and zinc are detected at three times background concentrations (Table 10; Appendix G). Sample SBA-33 represents a release to the surface water pathway via the adjacent wetland, and a PPE of waste from the Partially Buried Barge (Source 1).

Sample SBA-39 did not detect any PAHs above reporting limits, but did detect metals above reporting limits for arsenic, copper, zinc and lead, and three times background for metals cobalt, manganese, and zinc.

7.3 SOIL EXPOSURE PATHWAY

The soil exposure pathway is evaluated based on the threat to resident and nearby populations from soil contamination within the first two feet of the surface.

7.3.1 Site Setting and Exposed Sources

The Soil Exposure Pathway assesses the threat to human health and the environment by direct exposure to hazardous substances and areas of suspected contamination. This pathway takes into account potential contact with in-place hazardous substances at a site, rather than the migration of substances from the site (Ref. 1). The following subsections will describe the various details associated with this pathway.

Likelihood of exposure is concerned with areas of suspected contamination and is not limited to soil, but any sources, areas of contamination or other material on the surface that can be considered as areas of suspected contamination.

SBA encompasses approximately 98 acres of property. During IM/RA activities, fill material was acquired onsite from unaffected areas southwest of the former Oil Pit. Additionally, clean fill soil and roadbed gravel were imported from offsite to use in areas that were excavated.

The soil and waste samples collected from the sources show that contamination, primarily from PAHs, is present within 0 to 3 feet from the surface. Some of the concentrations exceed the ReCAP values and MSSLs.

7.3.2 Receptors

There are no receptors within 200 ft. from SBA Shipyard. Asphaltic material was deposited throughout the site, during the IM/RA activities. The material was visible during the site reconnaissance (Ref. 7, p. 51). The property is currently being used for livestock grazing (Ref. 7, p. 8). The nearest resident is located approximately 0.3 miles northwest of the former LTU area. Residential communities are located north of the site. Census data indicate that no persons reside within the 0.25-mile radius, 4 people are located within the 0.25 to 0.50 mile radius, and 16 people are located within the 0.50 to 1.0-mile radius (Ref. 22, p. 2).

7.3.3 Sample Locations and Results

Soil samples were collected from 12 borings in the areas where the remediated surface impoundments and landfarm were located and from a background location (Figure 5; Table 1, 5 to 8). Borings were advanced using a direct push device to a maximum depth of 16 feet below ground surface (bgs), or until groundwater was encountered (Appendix H). Up to two samples were collected from each boring, at depths determined in the field by visual observations and from organic vapor monitoring instruments (Appendix H). Samples were collected using an Encore like sampling device, grab sample. Samples collected within the 2 foot soil horizon include:

- SBA-009-02 (0-2 ft. bgs) – silt and asphalt like material, stained dark gray to black surface, slight odor (Results summarized in Table 7). PAH concentrations exceed background levels.
- SBA-012-PD (0-2 ft. bgs) – asphaltic tar like surface, black color, odor (Results summarized in Table 8). PAH concentrations exceed background levels.

In addition, a waste sample was collected from exposed material in the buried barge.

- Sample SBA-040 was collected on the western edge of the buried barge from exposed waste. The sample color is black and characterized as asphaltic, tarry, and oily. PAH concentrations significantly exceed reporting limits and when compared with background soil are significantly above 3 times background (Results summarized in Table 4 and in Section 6.1.2).

7.4 AIR MIGRATION PATHWAY

The air migration pathway TDL is a 4-mile radius that extends from sources at the site (Figure 6).

7.4.1 Human Receptors

The nearest resident is located approximately 0.3 miles northwest of the former LTU area. Residential communities are located north of the site. Census data indicate that 0 persons reside within the 0.25-mile radius, 4 people within the 0.25- to 0.50-mile radius, 16 people within the 0.50- to 1.0-mile radius, 77 people between the 1- to 2- mile radius, 1,139 people between

the 2- to 3-mile radius, and 1,803 people between the 3- to 4-mile radius of the site (Ref. 22, p. 2).

Significant wetland acreage is located within the 4-mile TDL for the air migration pathway (Figure 7).

7.4.2 Environmental Receptors

Air monitoring was conducted during the first week of stabilization and solidification of the former Oil Pit during the IM/RA activities. Water sprays, traffic speed control measures, tarpaulin covers, windscreens and temporary work stoppages were all used to minimize the emission of dust during IM/RA activities. The facility is inactive and abandoned. It is not currently known if a release of material attributable to the facility can be documented. The impoundments and LTU were closed in 1989. There is no cover on the abandoned barge. Odors were observed from the buried barge during the site reconnaissance. Areas of exposed soil and tar mats were observed during the site reconnaissance. Grasses and vegetation cover approximately 70% of the property.

7.4.3 Sample Locations and Results

No air samples were collected during the SI.

8 SUMMARY AND CONCLUSIONS

SBA is situated on approximately 98 acres of land located in a rural-industrial area in Jennings, Jefferson Davis Parish, LA. SBA used the site for construction, repair, retrofitting and cleaning of barges since 1965. Barges serviced by SBA typically held diesel, coal tar, crude oil, gasoline and asphalt.

Wastes from the barge cleaning operations were managed in a waste management area that included four impoundments, a LTU, and storage tanks. The wastes from barges consisted of petroleum hydrocarbons. The hydrocarbons were separated from the water into surface impoundments that were known as the Oil Pit, Water Pit 1, Water Pit 2 and Water Pit 3. Water was recycled for barge cleaning and some of the water was converted to steam for the cleaning operations. Aboveground oil/water separators and storage tanks eventually replaced the functions of the pits (aka surface impoundments).

During August 2013, START-3 collected soil samples at 13 locations at up to 16 bgs to identify the source material and contamination at the site, collected groundwater at 4 on-site locations to assess migration of contamination in the groundwater pathway, and collected 3 surface water samples and 11 sediment samples to assess migration of contamination in the surface water pathway.

Samples were sent to the EPA laboratory in Houston, TX for the following analyses:

- TCL VOAs by EPA CLP SOW SOM01.2;
- TCL SVOAs by EPA CLP SOW SOM01.2;
- TCL Pesticide/PCB by EPA CLP SOW SOM01.2;
- TAL Cyanides EPA CLP SOW ILM05.4; and
- TAL Total Metals + Mercury by EPA CLP SOW ILM05.4

8.1 SOURCES

The sources contain numerous polyaromatic hydrocarbons (PAHs): acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, dibenzofuran, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, 2-methylnaphthalene, naphthalene, phenanthrene, phenol, and pyrene which are constituents of diesel, coal tar, and asphalt (Table 4).

Organic analysis detected polycyclic aromatic hydrocarbons (PAHs) at percent concentration in the waste from the buried barge. Those with some of the highest percent concentrations include: anthracene at 4.6%, phenanthrene at 1.7%, fluoranthene and fluorene at 0.7%, acenaphthene at 0.3%, and benzo(a)anthracene at 0.2%. Contents of the buried barge have been observed leaking into the wetlands located to the southwest. In addition, tar-like material was observed approximately 2 to 3 feet in some areas throughout the site.

8.2 RECEPTORS

Groundwater samples from SBA-015 (MW-2) and the non-aqueous layer from SBA-015 contained some of the same PAHs detected in the sources. EPA and START observed that the residences on Castex Landing Road no longer use groundwater wells for drinking water.

Sediment samples from the Mermentau River (SBA-29 and SBA-30) and from the wetlands located south of the site (SBA-33) contain PAHs that meet observed release criteria. None of the surface water samples collected contained PAHs. The surface water pathway appears to be the pathway of concern for this site.

8.3 CONCLUSIONS

The Site Inspection conducted by START-3 showed PAHs in the sources located on the facility. An observed release of the same PAHs is detected in the groundwater and surface water pathways. Groundwater targets are not located within the residential area northwest of the

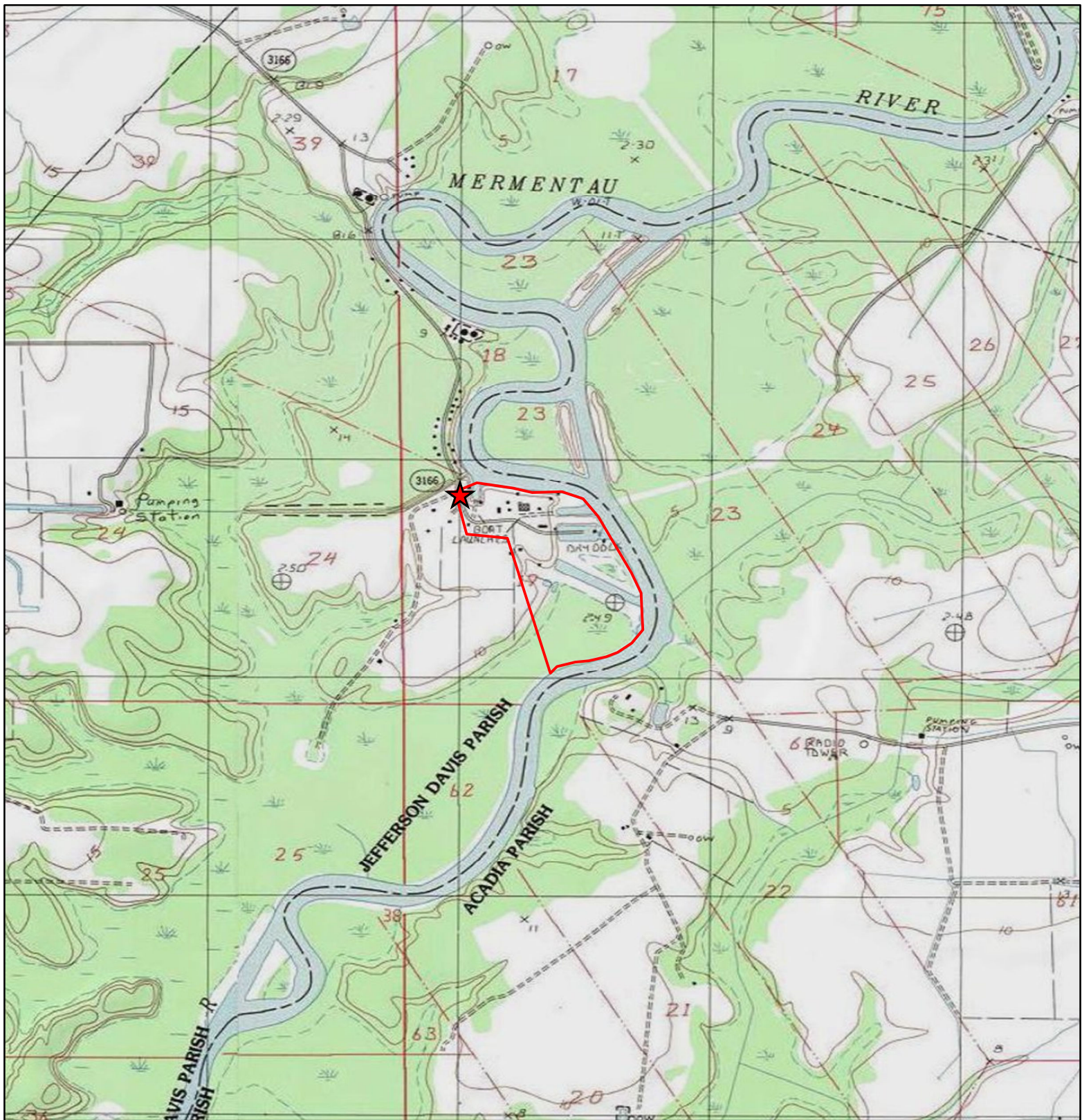
facility. The surface water pathway appears to be the pathway of concern for this site, due to the contaminated sediments in the Mermentau River and wetlands located south of the site.

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FIGURES

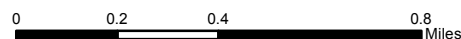


Legend

-  Site Entrance
-  SBA Shipyard, Inc.



1:24,000



**US EPA Region 6
START-3**

Figure 1. Site Location Map
(SBA Shipyard)
9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: TO-0009-12-10-02

May 2013



Map of Louisiana



Legend



SBA Shipyard, Inc.



1:10,000

0 450 900 1,800 Feet



US EPA Region 6
START-3

Figure 2. Aerial Location Map
(SBA Shipyard)

9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: TO-0009-12-10-02

May 2013



Map of Louisiana



Legend

- SBA Shipyard, Inc
- PPE Location

1:10,000



US EPA Region 6 START-3

Figure 3. PPE Location Map (SBA Shipyard)

9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: TO-0009-12-10-02

May 2013



Legend

- Monitor Well (Unknown)
- ▲ Monitor Well
- Sources



1:4,000

0 150 300 600 Feet



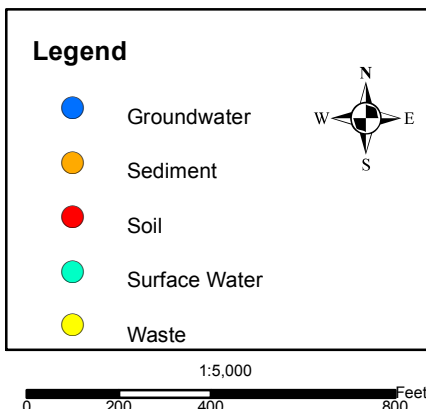
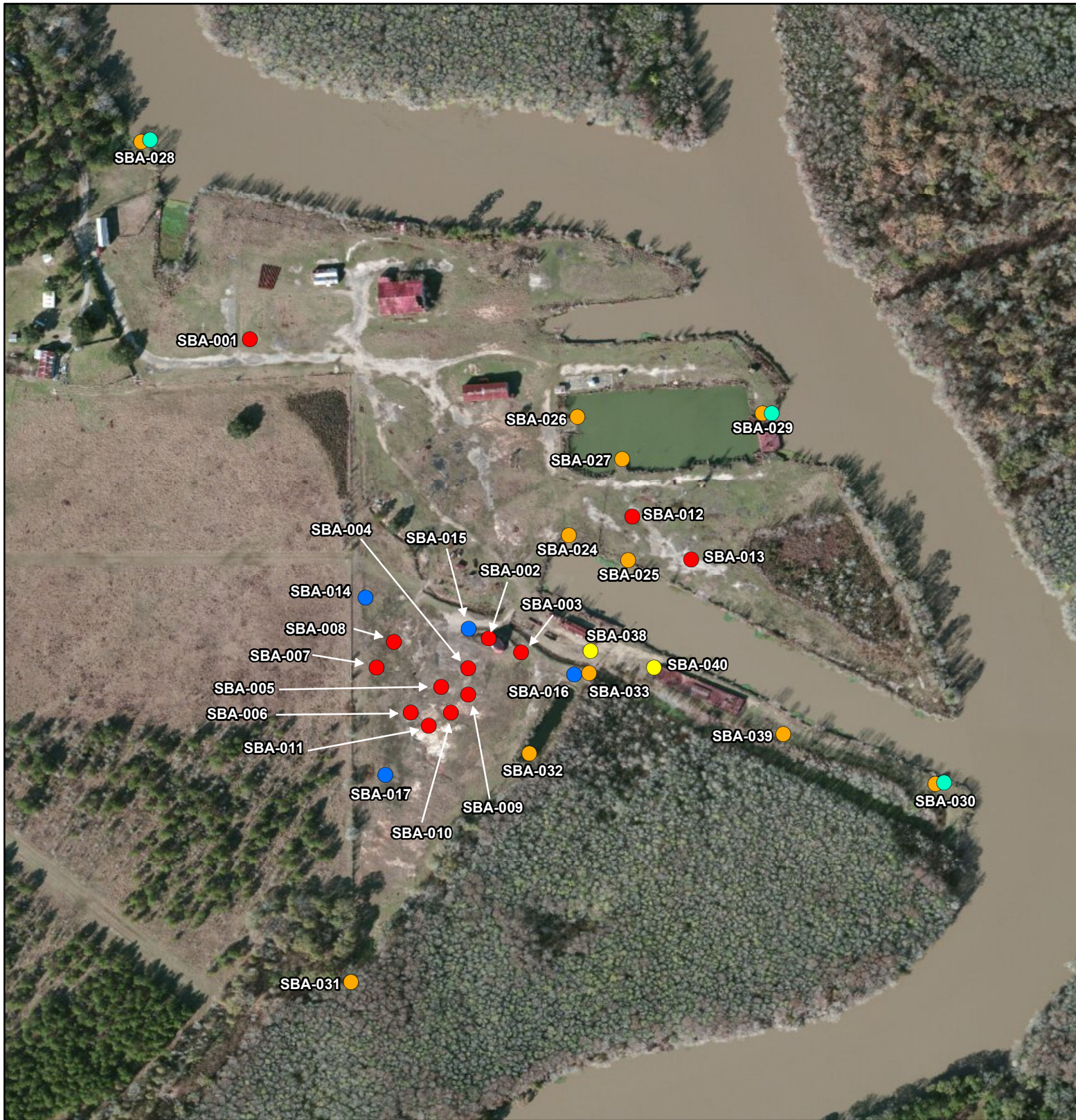
US EPA Region 6 START-3


Figure 4. Site Sketch (SBA Shipyard)

9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: 9/TO-0009-12-10-02

September 2013



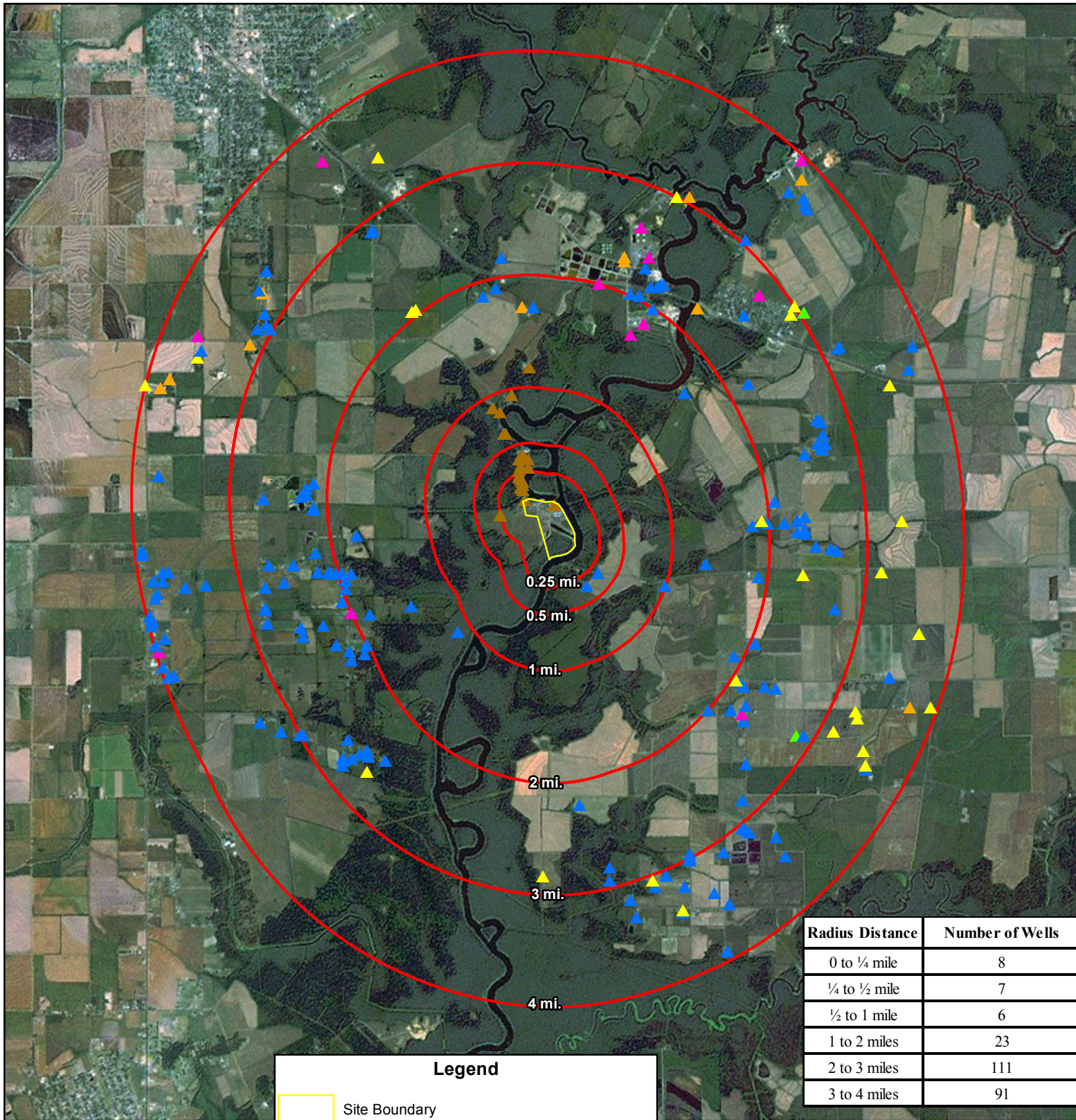


**US EPA Region 6
START-3**

Figure 5. Site Inspection Sampling Locations
(SBA Shipyard)
9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: 9/TO-0009-12-10-02

September 2013



Radius Distance	Number of Wells
0 to ¼ mile	8
¼ to ½ mile	7
½ to 1 mile	6
1 to 2 miles	23
2 to 3 miles	111
3 to 4 miles	91

Legend

Site Boundary

▲ Inactive - Domestic

LA DNR Registered Water Well Use

▲ Aquaculture

▲ Domestic

▲ Industrial

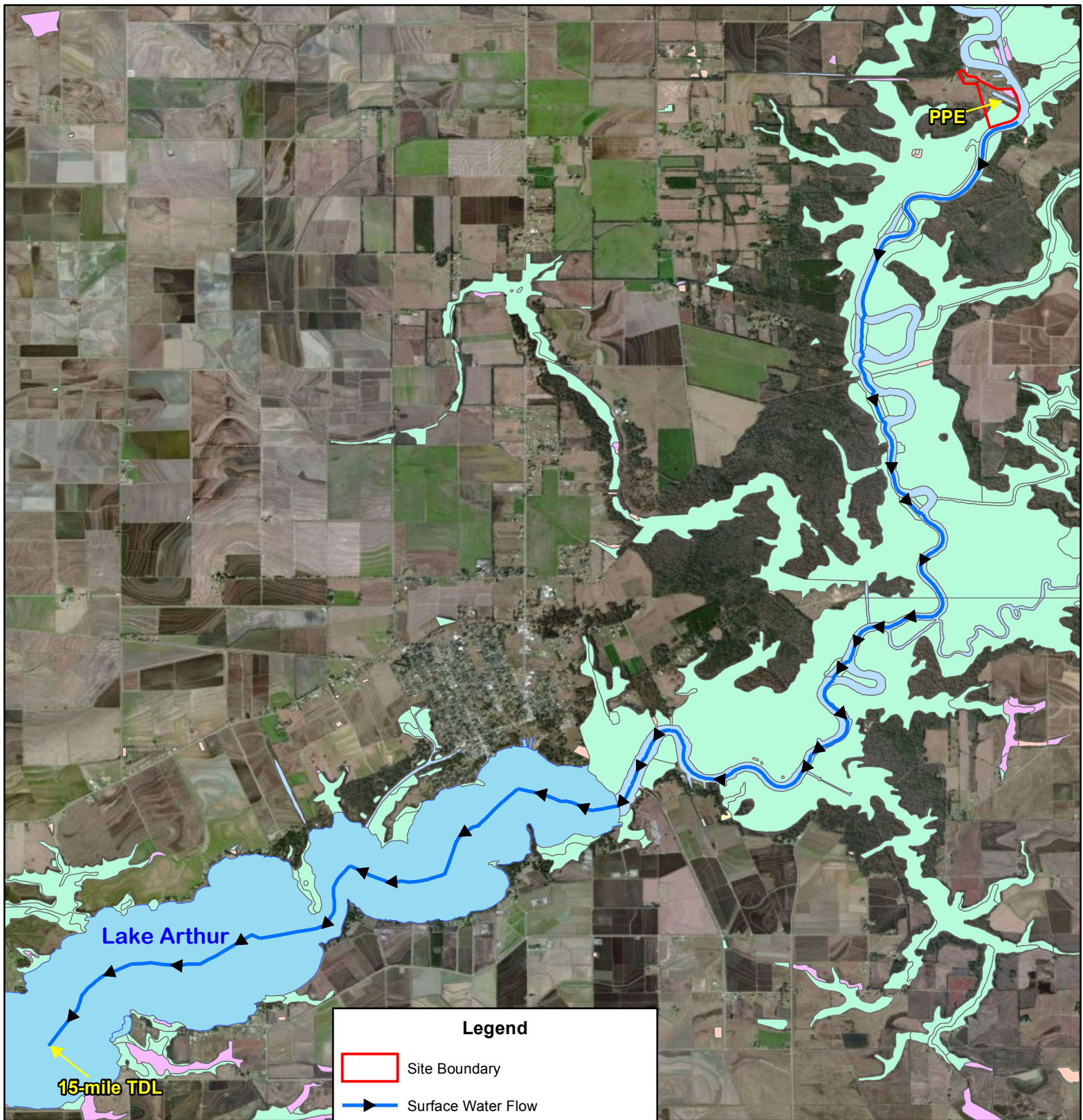
▲ Irrigation

▲ Municipal/Commercial/Institution Public Supply



US EPA Region 6 START-3

Figure 6. 4-Mile Groundwater Migration Receptors for SBA Shipyard
9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546



US EPA Region 6 START-3

Figure 7. Surface Water Migration Pathway (SBA Shipyard)

9040 Castex Landing Road, Highway 3166,
Jefferson Davis Parish, Jennings, LA 70546

CERCLIS: LAD008434185
TDD #: TO-0009-12-10-02

January 2013

TABLES

Table 1
Background Soil Sample Results Summary

Sample No. Analyte	SBA-001-02		SBA-001-24		SBA-001-46		SBA-001-68		SBA-001-10		SBA-001-12		SBA-001-14		SBA-001-16	
	Bkgd 0-2 feet		Bkgd 2-4 feet		Bkgd 4-6 feet		Bkgd 6-8 feet		Bkgd 8-10 feet		Bkgd 10-12 feet		Bkgd 12-14 feet		Bkgd 14-16 feet	
	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
% Solids	90.04		76.83		77.75		81.26		83.69		82.89		76.60		79.90	
Acenaphthene	538	217	U	256	U	255	U	246	U	236	U	240	U	259	U	247
Benzo (b) fluoranthene	4790	543	U	639	693	639	U	615	U	590	U	599	U	649	U	618
Benzo (g,h,i) perylene	4170	543	U	639	1080	639	U	615	U	590	U	599	U	649	U	618
Benzo (k) fluoranthene	3310	543	U	639	701	639	U	615	U	590	U	599	U	649	U	618
Acenaphthylene	1620	217	U	256	U	255	U	246	U	236	U	240	U	259	U	247
Carbazole	1530 J	543	U	639	838 J	639	U	615	U	590	U	599	U	649	U	618
Chrysene	2990	543	U	639	693	639	U	615	U	590	U	599	U	649	U	618
Dibenz (a,h) anthracene	1200	543	U	639	U	639	U	615	U	590	U	599	U	649	U	618
Anthracene	4820	217	U	256	2560	255	U	246	265	236	U	240	U	259	U	247
Fluoranthene	5650	217	U	256	853	255	U	246	U	236	U	240	U	259	U	247
Fluorene	391	217	U	256	U	255	U	246	U	236	U	240	U	259	U	247
Indeno (1,2,3-cd) pyrene	4290	543	U	639	929	639	U	615	U	590	U	599	U	649	U	618
2-Methylnaphthalene	289	217	U	256	U	255	U	246	U	236	U	240	U	259	U	247
Naphthalene	2290	217	U	256	306	255	U	246	U	236	U	240	U	259	U	247
Phenanthrene	2480	217	U	256	566	255	U	246	U	236	U	240	U	259	U	247
Pyrene	5870	217	U	256	972	255	U	246	U	236	U	240	U	259	U	247
Benzo (a) anthracene	1840	543	U	639	U	639	U	615	U	590	U	599	U	649	U	618
Benzo (a) pyrene	4300	543	U	639	755	639	U	615	U	590	U	599	U	649	U	618
Analyte (mg/kg)																
Mercury	0.544	0.067	U	0.082	U	0.077	U	0.080	U	0.074	U	0.076	U	0.075	U	0.079
Aluminum	4720	10.7	16600	12.4	13100	11.9	11800	11.6	8950	11.5	10700	11.3	12400	12.1	4990	11.6
Copper	18.9	2.1	8.2	2.5	7.6	2.4	6.6	2.3	4.9	2.3	7.6	2.3	18.0	2.4	4.1	2.3
Iron	19200	2.7	17500	3.1	14700	3.0	12800	2.9	8220	2.9	10800	2.8	16600	3.0	5510	2.9
Magnesium	692	16.0	1450	18.6	1510	17.8	1560	17.3	2670	17.3	2370	17.0	6360	18.2	1500	17.4
Manganese	276	0.5	145	0.6	23.8	0.6	22.9	0.6	39.0	0.6	55.4	0.6	166	0.6	36.7	0.6
Nickel	10.4	2.1	4.7	2.5	4.1	2.4	4.8	2.3	6.6	2.3	10.7	2.3	18.0	2.4	8.2	2.3
Potassium	184	107	375	124	306	119	317	116	555	115	585	113	1760	121	386	116
Silver	U	1.1	U	1.2	U	1.2	U	1.2	U	1.2	U	1.1	U	1.2	U	1.2

Table 1
Background Soil Sample Results Summary

Sample No. Analyte	SBA-001-02		SBA-001-24		SBA-001-46		SBA-001-68		SBA-001-10		SBA-001-12		SBA-001-14		SBA-001-16	
	Bkgd 0-2 feet		Bkgd 2-4 feet		Bkgd 4-6 feet		Bkgd 6-8 feet		Bkgd 8-10 feet		Bkgd 10-12 feet		Bkgd 12-14 feet		Bkgd 14-16 feet	
	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
% Solids	90.04		76.83		77.75		81.26		83.69		82.89		76.60		79.90	
Sodium	139	53.4	682	62.0	748	59.3	736	57.8	758	57.6	749	56.7	1170	60.7	465	57.9
Vanadium	28.0	2.1	36.6	2.5	34.4	2.4	29.5	2.3	11.8	2.3	17.6	2.3	26.5	2.4	9.3	2.3
Zinc	152	2.1	29.9	2.5	12.2	2.4	11.2	2.3	12.6	2.3	17.1	2.3	52.9	2.4	14.2	2.3
Barium	118	1.1	95.0	1.2	140	1.2	197	1.2	499	1.2	112	1.1	125	1.2	61.5	1.2
Beryllium	U	0.5	U	0.6	0.7	0.6	1.1	0.6	U	0.6	0.6	0.6	1.2	0.6	2.3	0.6
Cadmium	1.2	0.5	0.7	0.6	0.6	0.6	U	0.6	U	0.6	U	0.6	0.7	0.6	U	0.6
Calcium	3110	16.0	4590	18.6	2200	17.8	2230	17.3	22600	17.3	1870	17.0	4130	18.2	1380	17.4
Chromium	10.6	1.1	13.7	1.2	10.6	1.2	9.2	1.2	6.8	1.2	7.6	1.1	13.9	1.2	7.2	1.2
Cobalt	4.1	2.1	U	2.5	U	2.4	3.2	2.3	4.1	2.3	5.9	2.3	6.5	2.4	7.7	2.3
Lead	27.8	0.5	15.5	0.6	13.5	0.6	10.4	0.6	8.7	0.6	14.9	0.6	14.8	0.6	7.8	0.6
Selenium	U	1.1	U	1.2	U	1.2	U	1.2	U	1.2	U	1.1	U	1.2	U	1.2
Thallium	U	0.5	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6
Antimony	U	0.5	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6	U	0.6
Arsenic	7.5	0.5	4.4	0.6	3.6	0.6	3.3	0.6	U	0.6	2.3	0.6	4.0	0.6	0.7	0.6

Key:

BCKD - Background

ug/Kg = Concentrations in micrograms per kilograms

mg/Kg = Concentrations in milligrams per kilogram

RL - Reporting Limit

U - Undetected

J - The identification of the analyte is acceptable; the reported value is an estimate.

Table 2
Mermentau River Results Summary

Sample No.	SBA-28SW			SBA-29SW		SBA-30SW		EPA
	Background			Surface Water		Surface Water		MCLs
	RL	Result	3xconc. Or RL	Result	RL	Result	RL	Water
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Analyte								
% Solids	NA	NA	NA	NA	NA	NA	NA	
Acenaphthene	2.0	U	2.0	U	2.0	U	2.0	
Benzo (b) fluoranthene	4.9	U	4.9	U	4.9	U	5.0	
Benzo (g,h,i) perylene	4.9	U	4.9	U	4.9	U	5.0	
Benzo (k) fluoranthene	4.9	U	4.9	U	4.9	U	5.0	
Acenaphthylene	2.0	U	2.0	U	2.0	U	2.0	
Carbazole	4.9	U	4.9	U	4.9	U	5.0	
Chrysene	4.9	U	4.9	U	4.9	U	5.0	
Dibenzofuran	4.9	U	4.9	U	4.9	U	5.0	
Dibenz (a,h) anthracene	4.9	U	4.9	U	4.9	U	5.0	
Anthracene	2.0	U	2.0	U	2.0	U	2.0	
Fluoranthene	2.0	U	2.0	U	2.0	U	2.0	
Fluorene	2.0	U	2.0	U	2.0	U	2.0	
Indeno (1,2,3-cd) pyrene	4.9	U	4.9	U	4.9	U	5.0	
2-Methylnaphthalene	2.0	U	2.0	U	2.0	U	2.0	
2-Methylphenol	4.9	U	4.9	U	4.9	U	5.0	
Naphthalene	2.0	U	2.0	U	2.0	U	2.0	
Pentachlorophenol	4.9	U	4.9	U	4.9	U	5.0	
Phenanthrene	2.0	U	2.0	U	2.0	U	2.0	
Phenol	4.9	U	4.9	U	4.9	U	5.0	
Pyrene	2.0	U	2.0	U	2.0	U	2.0	
Benzo (a) anthracene	4.9	U	4.9	U	4.9	U	5.0	
Benzo (a) pyrene	4.9	U	4.9	U	4.9	U	5.0	
Analyte	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
Mercury	0.200	U	0.200	U	0.200	U	0.200	2
Aluminum	100	U	100	123	100	260	100	na
Iron	25.0	119	357	157	25.0	303	25.0	na
Magnesium	150	10700	32100	10700	150	10400	150	na
Manganese	5.0	118	354	94.1	5.0	122	5.0	na
Potassium	1000	4740	14220	4730	1000	4660	1000	na
Sodium	500	45300	135900	46200	500	44100	500	na

SBA-28SD			SBA-29SD		SBA-30SD	
Sediment Background			Sediment		Sediment	
RL	Result	3xconc. or RL	Result	RL	Result	RL
µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
	69.74		70.49		69.98	
286	U	286	U	283	U	278
715	U	715	1510 J	707	4450	695
715	U	715	1750 J	707	2990	695
715	U	715	976 J	707	2640	695
286	U	286	U	283	376	278
715	U	715	U	707	U	695
715	U	715	1040 J	707	9130	695
715	U	715	U	707	U	695
715	U	715	U	707	852	695
286	U	286	873 J	283	278 J	278
286	U	286	418 J	283	2110 J	278
286	U	286	U	283	U	278
715	U	715	1630 J	707	3490	695
286	U	286	U	283	U	278
715	U	715	U	707	U	695
286	U	286	U	283	U	278
715	U	715	U	707	U	695
286	U	286	U	283	285 J	278
715	U	715	U	707	U	695
286	U	286	903 J	283	4780	278
715	U	715	U	707	3680	695
715	U	715	1630*	707	5120	695
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
0.07	U	0.07	U	0.077	U	0.076
12.7	8270	24810	4110	11.4	4670	11.3
3.2	9650	28950	4650	2.8	4700	2.8
19	2090	6270	698	17.1	788	16.9
0.6	292	584	88.3	0.6	47.7	0.6
127	663	1989	302	11.4	351	113
63.4	144	432	78.3	56.8	87.6	56.3

Table 2
Mermentau River Results Summary

Analyte	Sample No.	SBA-28SW			SBA-29SW		SBA-30SW		EPA	SBA-28SD			SBA-29SD		SBA-30SD	
		Background			Surface Water		Surface Water		MCLs	Sediment Background			Sediment		Sediment	
		RL	Result	3xconc. Or RL	Result	RL	Result	RL	Water	RL	Result	3xconc. or RL	Result	RL	Result	RL
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Barium		10.0	153	459	151	10.0	151	10.0	2000	1.3	214	642	106	1.1	101	1.1
Calcium		150	26100	78300	26500	150	25500	150	na	19	2820	8460	1490	17.1	982	16.9
Lead		2.0	U	2.0	U	2.0	3.1	2.0	15	0.6	11.7	35.1	10.7	0.6	10.1	0.6
Arsenic		2.0	3.5	10.5	3.6	2.0	2.9	2.0	10	0.6	U	0.6	1.1	0.6	0.9	0.6
Cyanide (total)		0.0100	U	0.0100	0.0177	0.0100	0.113	0.0100	200	na	na	na	na	na	na	na

Key:

ug/L - Concentrations in micrograms per Liter
mg/L - Concentrations in milligrams per Liter
mg/K- concentrations in milligrams per kilogram
ug/Kg - Concentrations in micrograms per kilogram
RL - Reporting Limit
U - Undetected
SD- Sediment

SW - Surface Water
na - Not Applicable

Concentration is greater than 3 times background level

Concentration above reporting limit

J - The identification of the analyte is acceptable;
The reported value is an estimate.

MCL - Maximum Contaminant Level

.....Table 3
@i jg]UbUfLA\RECAP Standards

Louisiana Risk Evaluation/Corrective Action Program Standards

COMPOUND	CAS #	SOIL_SSni (mg/kg)	NOTE	SOIL_SSi (mg/kg)	NOTE	SOIL_SSGW (mg/kg)	NOTE	GW_SS (mg/L)	NOTE
Acenaphthene	83-32-9	373.6479476	N	6124.439919	N	215.3073088	A	0.0365	N
Acenaphthylene	208-96-8	346.6387731	N	5140.530475	N	88.41501563	A	0.1	Q
Acetone	67-64-1	174.2704067	N	1394.143988	N	1.545038755	A	0.1	Q
Aldrin	309-00-2	0.027726359	C	0.133892627	C	11.09705523	A	0.0019	Q
Aniline	62-53-3	2.422730744	N	16.67309275	N	0.064606662	A	0.01164274	C
Anthracene	120-12-7	2188.505596	N	47808.42095	N	121.2433897	A	0.043	W
Antimony	7440-36-0	3.128571429	N	81.76	N	12	L1	0.006	MCL
Arsenic	7440-38-2	11.5	D	11.5	D	100	L	0.01	MCL
Barium	7440-39-3	547.5	N	14308	N	2000	L	2	MCL
Benzene	71-43-2	1.486209861	C	3.083911025	C	0.05130846	A	0.005	MCL
Benz(a)anthracene	56-55-3	0.620205398	C	2.868199367	C	334.7675283	A	0.0078	Q
Benzo(a)pyrene	50-32-8	0.33	Q	0.33	Q	23.23291584	A	0.0002	MCL
Benzo(b)fluoranthene	205-99-2	0.620217342	C	2.868329304	C	221.1792505	A	0.0048	Q
Benzo(k)fluoranthene	207-08-9	6.21235289	C	28.79427687	C	117.9622606	A	0.0025	Q
Beryllium	7440-41-7	15.64285714	N	408.8	N	8	L1	0.004	MCL
Biphenyl,1,1-	92-52-4	231.7845284	P	231.7845284	P	187.812402	A	0.03041667	N
Bis(2-chloroethyl)ether	111-44-4	0.33	Q	1.078210233	C	0.33	Q	0.0057	Q
Bis(2-chloroisopropyl)ether	108-60-1	4.92045637	C	16.66660626	C	0.8	Q	0.0057	Q
Bis(2-ethyl-hexyl)phthalate	117-81-7	34.51630075	C	173.0325248	C	79.13451265	A	0.006	MCL
Bromodichloromethane	75-27-4	1.839602605	C	4.200368713	C	0.917587573	A	0.1	MCL
Bromoform	75-25-2	47.95677386	C	175.0893336	C	1.76110347	A	0.1	MCL
Bromomethane	74-83-9	0.433134495	N	2.977819192	N	0.039906124	A	0.01	Q
Butyl benzyl phthalate	85-68-7	222.2735416	P	222.2735416	P	222.2735416	P	0.73	N
Cadmium	7440-43-9	3.89979486	N	100.8685353	N	20	L	0.005	MCL
Carbon Disulfide	75-15-0	36.27397069	N	250.6974251	N	10.54803761	A	0.10428571	N
Carbon Tetrachloride	56-23-5	0.18197007	N	1.142647437	C	0.114323897	A	0.005	MCL
Chlordane	57-74-9	1.58989559	C	9.976327289	C	12.30446076	A	0.002	MCL
Chloroaniline,p-	106-47-8	16.24731624	N	168.629527	N	1.517241547	A	0.02	Q
Chlorobenzene	108-90-7	16.83598626	N	122.1268025	N	2.958557483	A	0.1	MCL
Chlorodibromomethane	124-48-1	2.153322401	C	5.429998521	C	1.00884321	A	0.1	MCL
Chloroethane (Ethylchloride)	75-00-3	4.126948522	C	8.233937411	C	0.03486149	A	0.01	Q
Chloroform	67-66-3	0.044327744	N	0.29590324	N	0.902429303	A	0.1	MCL
Chloromethane	74-87-3	3.491132717	C	7.265500371	C	0.1	Q	0.01	Q
Chloronaphthalene,2-	91-58-7	502.0268838	N	8321.861589	N	497.692068	A	0.04866667	N
Chlorophenol,2-	95-57-8	15.34703397	N	144.6861508	N	1.399528554	A	0.01	Q
Chromium(III)	16065-83-1	11732.14286	N	306600	N	100	L	0.1	MCL
Chromium(VI)	18540-29-97	23.46428571	N	613.2	N	100	L	0.1	MCL
Chrysene	218-01-9	61.90114483	C	285.5245365	C	76.3424864	A	0.0016	W

.....Table 3
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Louisiana Risk Evaluation/Corrective Action Program Standards

		SOIL_SSni		SOIL_SSi		SOIL_SSGW		GW_SS	
Cobalt	7440-48-4	469.2857143	N	12264	N	4400	L1	0.219	N
Copper	7440-50-8	312.8571429	N	8176	N	1500	S	1.3	MCL
Cyanide (free)	57-12-5	152.167871	N	3611.30742	N	400	L1	0.2	MCL
DDD	72-54-8	2.398053713	C	16.14198696	C	1.518869059	A	0.00027652	C
DDE	72-55-9	1.693854481	C	11.41998133	C	2.022130864	A	0.00019519	C
DDT	50-29-3	1.712656495	C	11.86672004	C	24.38399487	A	0.0003	Q
Dibenz(a,h)anthracene	53-70-3	0.33	Q	0.33	Q	536.4617397	A	0.0025	Q
Dibenzofuran	132-64-9	29.31718855	N	151.6010855	P	23.77561125	A	0.01	Q
Dibromo-3-chloropropane,1,2-	96-12-8	0.176860409	N	1.62172716	N	0.01	Q	0.0002	MCL
Dichlorobenzene,1,2-	95-50-1	99.27489031	N	375.0760687	P	28.82275405	A	0.6	MCL
Dichlorobenzene,1,3-	541-73-1	2.093340317	N	17.94091119	N	2.064973831	A	0.01	Q
Dichlorobenzene,1,4-	106-46-7	6.70879438	C	16.40813677	C	5.736525944	A	0.075	MCL
Dichlorobenzidine,3,3-	91-94-1	0.968505054	C	4.214487659	C	1.785200032	A	0.02	Q
Dichloroethane,1,1-	75-34-3	65.52831593	N	466.3340451	N	7.526235226	A	0.08117418	N
Dichloroethane,1,2-	107-06-2	0.815150338	C	1.76184554	C	0.03546755	A	0.005	MCL
Dichloroethene,1,1-	75-35-4	13.28155052	N	90.92103427	N	0.084893824	A	0.007	MCL
Dichloroethene,cis,1,2-	156-59-2	4.809287627	N	33.63001502	N	0.491098837	A	0.07	MCL
Dichloroethene,trans,1,2-	156-60-5	6.908761604	N	47.66664874	N	0.769462043	A	0.1	MCL
Dichlorophenol,2,4-	120-83-2	15.85332472	N	197.5739561	N	11.70361659	A	0.01095	N
Dichloropropane,1,2-	78-87-5	0.686841835	N	1.756092031	C	0.041513559	A	0.005	MCL
Dichloropropene,1,3-	542-75-6	3.131893684	C	9.955625633	C	0.040365855	A	0.005	Q
Dieldrin	60-57-1	0.029800149	C	0.146373589	C	7.648417057	A	0.0025	Q
Diethylphthalate	84-66-2	666.0695052	P	666.0695052	P	359.805763	A	2.92	N
Dimethylphenol,2,4-	105-67-9	93.41170105	N	1057.552806	N	20.09164366	A	0.073	N
Dimethylphthalate	131-11-3	1516.519223	P	1516.519223	P	1516.519223	P	36.5	N
Di-n-octylphthalate	117-84-0	244.100606	N	3514.213031	N	9984.002475	P	0.02	W
Dinitrobenzene,1,3-	99-65-0	0.449072246	N	4.951288938	N	0.25	Q	0.01	Q
Dinitrophenol,2,4-	51-28-5	7.118798238	N	69.13520016	N	1.7	Q	0.05	Q
Dinitrotoluene,2,6-	606-20-2	4.288420727	N	45.93247444	N	0.392875707	A	0.01	Q
Dinitrotoluene,2,4-	121-14-2	8.940789055	N	98.28726945	N	1.015902421	A	0.01	Q
Dinoseb	88-85-7	4.717035968	N	53.77615433	N	0.14	Q	0.007	MCL
Endosulfan	115-29-7	33.93703004	N	450.4396647	N	54.09753276	A	0.0219	N
Endrin	72-20-8	1.77233453	N	24.60660544	N	2.594309378	A	0.002	MCL
Ethyl benzene	100-41-4	163.6661254	N	232.5016836	P	19.2409675	A	0.7	MCL
Fluoranthene	206-44-0	224.4277443	N	2885.39429	N	1213.030116	A	0.146	N
Fluorene	86-73-7	276.6833948	N	5407.219769	N	225.5054272	A	0.02433333	N
Heptachlor	76-44-8	0.016349678	C	0.035422806	C	0.500322393	A	0.0004	MCL
Heptachlor epoxide	1024-57-3	0.052935764	C	0.264089265	C	1.995269323	A	0.0002	MCL
Hexachlorobenzene	118-74-1	0.340620482	C	1.992310226	C	9.592829697	A	0.001	MCL

.....Table 3
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Louisiana Risk Evaluation/Corrective Action Program Standards

		SOIL_SSni		SOIL_SSi		SOIL_SSGW		GW_SS	
Hexachlorobutadiene	87-68-3	0.822866426	N	8.602225036	N	5.47969486	A	0.00073	N
Hexachlorocyclohexane,alpha	319-84-6	0.081785823	C	0.441527719	C	0.006403642	A	0.00003	Q
Hexachlorocyclohexane,beta	319-85-7	0.291310659	C	1.622748383	C	0.015540467	A	0.00006	Q
Hexachlorocyclohexane,gamma	58-89-9	0.389862842	C	2.046265038	C	0.032860969	A	0.0002	MCL
Hexachlorocyclopentadiene	77-47-4	1.378740587	N	9.405467113	N	1199.003395	A	0.05	MCL
Hexachloroethane	67-72-1	5.188821274	N	68.42739417	N	2.161298661	A	0.01	Q
Indeno(1,2,3-cd)pyrene	193-39-5	0.621491921	C	2.882233474	C	9.151566742	A	0.0037	Q
Isobutyl alcohol	78-83-1	733.4787721	N	6234.225071	N	29.92278507	A	1.095	N
Isophorone	78-59-1	337.1322891	C	1109.978593	C	0.564360895	A	0.06985646	C
Lead (inorganic)	7439-92-1	400	B	1400	B	100	L	0.015	MCL
Mercury (inorganic)	7487-94-7	2.346428571	N	61.32	N	4	L	0.002	MCL
Methoxychlor	72-43-5	30.12184352	N	427.3170369	N	383.7094552	A	0.04	MCL
Methylene chloride	75-09-2	18.69721484	C	44.33290307	C	0.016816167	A	0.005	MCL
Methyl ethyl ketone	78-93-3	590.9671771	N	4351.295519	N	4.99307106	A	0.19060864	N
Methyl isobutyl ketone	108-10-1	446.1932789	N	3063.38493	P	6.420194669	A	0.19930159	N
Methylnaphthalene,2-	91-57-6	22.15593188	N	165.2673834	N	1.686829472	A	0.00062245	N
MTBE (methyl tert-butyl ether)	1634-04-4	654.2167433	N	4707.423095	N	0.077054441	A	0.02	T/O
Naphthalene	91-20-3	6.19574424	N	42.59771533	N	1.451578673	A	0.01	Q
Nickel	7440-02-0	156.4285714	N	4088	N	1500	L1	0.073	N
Nitrate	14797-55-8	12514.28571	N	327040	N	20000	L1	10	MCL
Nitrite	14797-65-0	782.1428571	N	20440	N	2000	L1	1	MCL
Nitroaniline,2-	88-74-4	1.7	Q	1.7	Q	1.7	Q	0.05	Q
Nitroaniline,3-	99-09-2	12.85926143	N	144.9652604	N	1.7	Q	0.05	Q
Nitroaniline,4-	100-01-6	10.47141615	N	100.805512	N	1.7	Q	0.05	Q
Nitrobenzene	98-95-3	2.188606448	N	25.03831	N	0.33	Q	0.0019	Q
Nitrophenol,4-	100-02-7	32.13298024	N	331.4563853	N	2.645926513	A	0.05	Q
Nitrosodi-n-propylamine,n-	621-64-7	0.33	Q	0.33	Q	0.33	Q	0.01	Q
N-nitrosodiphenylamine	86-30-6	90.45990451	C	401.9497864	C	2.127855185	A	0.0135436	C
Pentachlorophenol	87-86-5	2.776955015	C	9.731877748	C	1.7	Q	0.001	MCL
Phenanthrene	85-01-8	2108.62766	N	42533.41269	N	664.5686476	A	0.1825	N
Phenol	108-95-2	1287.794675	N	14532.1499	N	10.80510969	A	0.1825	N
Polychlorinated biphenyls	1336-36-3	0.105833822	N	0.898446756	C	18.52247686	A	0.0005	MCL
Pyrene	129-00-0	229.1608461	N	5606.69618	N	1100.816455	A	0.01825	N
Selenium	7782-49-2	39.10714286	N	1022	N	20	L	0.05	MCL
Silver	7440-22-4	39.10714286	N	1022	N	100	L	0.01825	N
Styrene	100-42-5	495.9033534	N	1737.667127	P	11.19938978	A	0.1	MCL
Tetrachlorobenzene,1,2,4,5-	95-94-3	1.190720073	N	12.20357454	N	6.920568652	A	0.001095	N
Tetrachloroethane,1,1,1,2-	630-20-6	2.748183784	C	5.918252255	C	0.045566196	A	0.005	Q
Tetrachloroethane,1,1,2,2-	79-34-5	0.810320525	C	1.985021328	C	0.005981579	A	0.0005	Q

Louisiana Risk Evaluation/Corrective Action Program Standards

		SOIL_SSni		SOIL_SSi		SOIL_SSGW		GW_SS	
Tetrachloroethylene	127-18-4	8.329514395	C	34.66714671	C	0.177762024	A	0.005	MCL
Tetrachlorophenol,2,3,4,6-	58-90-2	143.6322222	N	1401.545169	P	30.66272066	A	0.1095	N
Thallium	7440-28-0	0.5475	N	14.308	N	4	L1	0.002	MCL
Toluene	108-88-3	67.63078972	N	466.2808173	N	19.72615791	A	1	MCL
Toxaphene	8001-35-2	0.438378092	C	2.190506954	C	34.46044033	A	0.003	MCL
Trichlorobenzene,1,2,4-	120-82-1	65.76563054	N	1173.797095	N	14.10974119	A	0.07	MCL
Trichloroethane,1,1,1-	71-55-6	81.90113203	N	703.1435412	N	3.976471584	A	0.2	MCL
Trichloroethane,1,1,2-	79-00-5	1.896022052	C	4.292862432	C	0.057621431	A	0.005	MCL
Trichloroethene	79-01-6	0.099825202	C	0.206298264	C	0.072547995	A	0.005	MCL
Trichlorofluoromethane	75-69-4	38.36199872	N	259.1265171	N	36.6751664	A	0.12882353	N
Trichlorophenol,2,4,5-	95-95-4	527.0170297	N	6552.656884	N	318.7992406	A	0.365	N
Trichlorophenol,2,4,6-	88-06-2	39.7099346	C	173.2730346	C	1.307384649	A	0.01	Q
Vanadium	7440-62-2	54.75	N	1430.8	N	520	L1	0.02555	N
Vinyl chloride	75-01-4	0.237804403	C	0.786501917	C	0.013259462	A	0.002	MCL
Xylene(mixed)	1330-20-7	17.92680026	N	120.6467733	N	147.9594974	P	10	MCL
Zinc	7440-66-6	2346.428571	N	61320	N	2800	S	1.095	N
Aliphatics C6-C8	NA	1176.601238	N	8030.839623	N	10000	O,T	3.19224422	N
Aliphatics >C8-C10	NA	117.5014676	N	882.7926297	N	5269.566349	A	0.15	Q
Aliphatics >C10-C12	NA	229.1133118	N	1955.287563	N	10000	O,T	0.15	Q
Aliphatics >C12-C16	NA	367.525149	N	3772.332703	N	10000	O,T	0.15	Q
Aliphatics >C16-C35	NA	7091.341375	N	10000	O,T	10000	O,T	7.3	N
Aromatics >C8-C10	NA	64.87909953	N	511.9702402	N	65.127374	A	0.15	Q
Aromatics >C10-C12	NA	118.1853408	N	1097.266401	N	102.3688471	A	0.15	Q
Aromatics >C12-C16	NA	181.8664722	N	2139.795142	N	203.2921866	A	0.15	Q
Aromatics >C16-C21	NA	148.0989413	N	1745.981933	N	2083.161487	A	0.15	Q
Aromatics >C21-C35	NA	179.1985071	N	2518.115974	N	10000	O,T	0.15	Q
TPH-GRO	NA	64.87909953	N,I	511.9702402	N,I	65.127374	A	0.15	Q
TPH-DRO	NA	64.87909953	N,I	511.9702402	N,I	65.127374	A	0.15	Q
TPH-ORO	NA	179.1985071	N,I	2518.115974	N,I	10000	O,T	0.15	Q

A - Based on algorithm contained in Appendix H

B - Based on EPA's biokinetic and adult lead cleanup level models for lead

C - Based on carcinogenic health effects

D - DEQ established background level plus one standard deviation = 11.5

I - TPH Standards are only applicable when used in conjunction with Standards for indicator compounds

L - Soil level protective of groundwater for inorganic constituents based on leachability

L1 - Soil level protective of groundwater for inorganic constituents based on GW 1 because TCLP value not listed

M - Based on EPA's Maximum Contaminant Level (MCL) for drinking water

N - Based on non-carcinogenic health effects

Louisiana Risk Evaluation/Corrective Action Program Standards

SOIL_SSni

SOIL_SSi

SOIL_SSGW

GW_SS

O - Ceiling value based on aesthetic considerations

P - Soil Saturation Limit is less than health based level thus default to soil saturation limit

Q - Based on analytical quantitation limit

S - Soil level protective of groundwater for inorganic constituents based on the maximum concentration for the beneficial use of sewage sludge

T - TPH shall not exceed 10,000

W - Solubility limit is less than health based limit thus default to solubility limit

T/O - EPA taste/odor advisory value

Table 4
Sources Results Summary

Analyte	Sample No.	SBA-24SD		SBA-25SD		SBA-26SD		SBA-27SD		SBA-38SL		SBA-40		SBA-32SD	
		Barge Slip NW		Barge Slip N		Dry Dock W		Dry Dock S		Stained Soil		Barge		Source 6	
		Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
% Solids		71.26		56.39		45.52		43.06		96.34		79.29		62.29	
Acenaphthene		1270	279	U	346	U	438	U	458	26400	2040	3.20E6	472000	7520	311
Benzo (b) fluoranthene		4100***	697	22500***	8660	12800 J***	1090	8030 J***	1140	77900***	5100	1.02E6***	118000	12700***	3890
Benzo (g,h,i) perylene		2860**	697	11000**	866	8210 J**	1090	6660 J**	1140	22700**	5100	389000**	118000	7620**	3890
Benzo (k) fluoranthene		2950	697	16300	8660	10100 J	1090	6290 J	1140	31300***	5100	914000***	118000	6900	3890
1,1'-Biphenyl		U	697	U	866	U	1090	U	1140	U	5100	645000	118000	U	778
Acenaphthylene		621	279	3000	346	1690	438	1160	458	7710	2040	385000	47200	1150	311
Carbazole		U	697	2880 J	866	3460 J	1090	50400 J	11400	U	5100	1.66E7 J	1.18E6	2540 J	778
Chrysene		5240**	697	19200**	8660	10100	1090	9090	1140	100000	5100	3.04E6***	1.18E6	12800	3890
Dibenzofuran		U	697	1860	866	U	1090	4270	1140	20300	5100	3.77E6***	1.18E6	3340	778
Dibenz (a,h,i) anthracene		712***	697	3780***	866	1830 J*	1090	1320 J*	1140	6410***	5100	145000***	118000	2070 J***	778
Anthracene		1030	279	4750	3460	11000	438	137000	4580	77000	2040	4.61E7**	4.72E6	21400	1560
Fluoranthene		8440	279	33600	3460	11600	438	7280	4580	231000	20400	6.79E6***	472000	20300	1560
Fluorene		395	279	2330	346	937	438	12000	458	50900	2040	7.23E6***	472000	10500	311
Indeno (1,2,3-cd) pyrene		3090***	697	12900***	866	7610 J***	1090	5630 J***	1140	26000***	5100	450000***	118000	8830***	3890
2-Methylnaphthalene		U	279	700	346	U	438	2710	458	U	2040	2.78E6***	472000	1880	311
Naphthalene		U	279	4170	346	1270	438	3180	458	2740	2040	6.15E6***	472000	786	311
Phenanthrene		404	279	21400	3460	6260	438	24200	4580	299000	20400	1.69E7	472000	26600	1560
Pyrene		12600	279	33700	3460	19000	438	8210	458	259000	20400	5.08E6**	472000	21800	1560
Benzo (a) anthracene		3470***	697	16000***	866	8650***	1090	4030***	1140	75300***	5100	1.98E6***	118000	8910***	3890
Benzo (a) pyrene		5500***	697	21000**	8660	11000 J***	1090	7480 J***	1140	55300***	5100	1.12E6***	118000	13800***	3890
Analyte (mg/kg)															
Mercury		U	0.064	U	0.064	0.109	0.095	0.203	0.084	0.094	0.060	1.46	0.074	0.066	0.047
Chromium		7.3	1.2	74.1	1.1	12.1	1.8	7.4	1.9	15.0 J	1.0	16.6	1.2	11.3	1.4
Cobalt		4.1	2.4	7.6	2.2	4.3	3.7	4.9	3.7	3.6	2.0	4.1	2.4	6.0	2.8
Lead		9.0	0.6	40.6	0.5	25.3	0.9	29.8	0.9	116 J	0.5	29.7	0.6	16.1	0.7
Arsenic		3.9**	0.6	4.8**	0.5	5.2**	0.9	3.8**	0.9	2.8**	0.5	5.4**	0.6	3.8**	0.7
Analyte (ug/kg)															
Aroclor-1254		U	13.3	U	34.0	39.6 J	39.3	U	154	290	94.6	U	98.5	U	63.8
Cyclohexane		U	99.9	U	99.6	U	99.7	U	99.6	U	99.6	10800	199	U	99.4
Benzene		U	99.9	U	99.6	U	99.7	U	99.6	U	99.6	17400***	199	U	99.4
Methylcyclohexane		U	99.9	U	99.6	U	99.7	U	99.6	U	99.6	15300	199	U	99.4
Toluene		U	99.9	U	99.6	U	99.7	U	99.6	U	99.6	36500	199	U	99.4
Tetrachloroethene		U	99.9	U	99.6	U	99.7	U	99.6	U	99.6	267	199	U	99.4
Ethylbenzene		U	99.9	U	99.6	U	99.7	U	99.6	U	99.6	17900	199	U	99.4
meta-/para-Xylene		U	200	U	199	U	199	U	199	U	199	66400	398	U	199
ortho-Xylene		U	99.9	U	99.6	U	99.7	U	99.6	U	99.6	29600	199	U	99.4
Isopropylbenzene		U	99.9	U	99.6	U	99.7	U	99.6	U	99.6	24700	199	U	99.4
1,2-Dichlorobenzene		U	99.9	U	99.6	U	99.7	U	99.6	U	99.6	565	199	U	99.4
Vinyl chloride		U	99.9	U	99.6	U	99.7	U	99.6	U	99.6	313	199	U	99.4

Table 4
Sources Results Summary

Analyte	Sample No.		SBA-24SD		SBA-25SD		SBA-26SD		SBA-27SD		SBA-38SL		SBA-40		SBA-32SD	
			Barge Slip NW		Barge Slip N		Dry Dock W		Dry Dock S		Stained Soil		Barge		Source 6	
			Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
			µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg

Key:

ug/Kg = Concentrations in microgram per kilogram

mg/Kg = Concentrations in milligrams per kilogram

RL - Reporting Limit

U - Undetected

SD - Sediment

SL - Soil

i or ind - industrial

na - not assigned or not applicable

N - North

NW - Northwest

W - West

S - South

J - The identification of the analyte is acceptable;

The reported value is an estimate.

* - above LDEQ RECAP Screening Levels

** - above EPA MSSSL Screening Levels

*** - above both EPA and LDEQ Screening Levels

Concentration is greater than reporting limit

Concentration is greater than background

Table 5
Subsurface Soil Samples from Source No. 3, 4 and 5

Analyte	Sample No.	SBA-002-PD		SBA-002-WT		SBA-003-68		SBA-003-WT	
		6 to 8 ft internal		10 to 12 ft internal		6 to 8 ft interval		10 to 12 ft interval	
		Result	RL	Result	RL	Result	RL	Result	RL
		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
% Solids		73.22		73.83		81.47		77.74	
Acenaphthene		70900	6710	141000	23900	30400	4760	141000	11900
Benzo (b) fluoranthene		24000	1680	54900	5970	6340	1190	25600	2970
Benzo (g,h,i) perylene		9830	1680	25000	5970	3430	1190	12000	2970
Benzo (k) fluoranthene		16300	1680	44000	5970	5470	1190	24500	2970
1,1'-Biphenyl		22100	1680	37300	5970	7290	1190	36600	2970
Acenaphthylene		4970	671	6460	2390	4270	476	13600	1190
Carbazole		45200 J	16800	51600 J	5970	15400 J	1190	49700 J	2970
Chrysene		54700	16800	93300	5970	14600	1190	55000	2970
Dibenzofuran		74200	16800	151000	59700	28400	11900	137000	29700
Dibenz (a,h) anthracene		3540	1680	8740	5970	1320	1190	4800	2970
Anthracene		111000	6710	115000	2390	35700	4760	110000	11900
Fluoranthene		210000	6710	495000	23900	61700	4760	263000	11900
Fluorene		106000	6710	208000	23900	39400	4760	173000	11900
Indeno (1,2,3-cd) pyrene		11900	1680	27700	5970	3830	1190	14000	2970
2-Methylnaphthalene		63300	6710	86600	2390	27400	4760	142000	11900
Naphthalene		251000	6710	191000	23900	95400	4760	493000	11900
Phenanthrene		428000	67100	946000	23900	131000	4760	567000	11900
Phenol		U	1680	U	5970	1670	1190	U	2970
Pyrene		138000	6710	333000	23900	43400	4760	180000	11900
Benzo (a) anthracene		45500	16800	98700	5970	12500	1190	51000	2970
Benzo (a) pyrene		23700	1680	57600	5970	7050	1190	28900	2970
Analyte									
Copper		39.8	2.6	29.0	2.5	7.6	2.3	13.6	2.5
Magnesium		4290	19.2	7530	18.5	3920	17.5	7800	18.5
Manganese		10900	0.6	587	0.6	177	0.6	384	0.6
Nickel		70.9	2.6	27.8	2.5	12.8	2.3	19.0	2.5
Potassium		1510	128	2320	123	933	117	1970	123
Zinc		66.7	2.6	70.4	2.5	33.5	2.3	49.5	2.5
Barium		3730	1.3	179	1.2	164	1.2	175	1.2
Cadmium		2.3	0.6	1.5	0.6	U	0.6	0.7	0.6
Calcium		5020	19.2	32700	18.5	1610	17.5	17600	18.5

Table 5
Subsurface Soil Samples from Source No. 3, 4 and 5

Analyte	Sample No.	SBA-002-PD		SBA-002-WT		SBA-003-68		SBA-003-WT	
		6 to 8 ft internal		10 to 12 ft internal		6 to 8 ft interval		10 to 12 ft interval	
		Result	RL	Result	RL	Result	RL	Result	RL
		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Cobalt		200	2.6	9.5	2.5	7.1	2.3	6.7	2.5
Lead		39.9	0.6	20.7	0.6	8.0	0.6	11.1	0.6
Arsenic		18.2	0.6	11.9	0.6	1.2	0.6	1.6	0.6
Cyclohexane		229	99.9	220 L	89.0	295 J	4.0	656 L	81.5
Methylcyclohexane		680	99.9	566 L	89.0	217	99.6	990 L	81.5
Ethylbenzene		498	99.9	403 L	89.0	566	99.6	3340 L	81.5
meta-/para-Xylene		743	200	908L	178	1920	199	10700 L	163
ortho-Xylene		418	99.9	343	4.5	674	99.6	3760 L	81.5
cis-1,2-Dichloroethene		UJ	4.5	30.3	4.5	169	4.0	1370 L	81.5
Benzene		295 L	4.5	273	4.5	229	4.0	1580 L	81.5
Toluene		191 L	4.5	560 L	89.0	864	99.6	4380 L	81.5
Tetrachloroethene		UJ	4.5	9.7	4.5	42.6	4.0	121 L	81.5
Styrene		UJ	4.5	15.1 J	4.5	64.8	4.0	UJ	81.5
Isopropylbenzene		102 L	4.5	73.2	4.5	385	99.6	2430 L	81.5
1,2-Dichlorobenzene		312 L	4.5	178	4.5	11.8	4.0	163 L	81.5

Key:

ug/Kg = Concentrations in micrograms per kilograms

mg/Kg = Concentrations in milligrams per kilogram

RL - Reporting Limit

U - Undetected

L - The identification of the analyte is acceptable; the reported value may be biased low. The actual value is expected to be greater than the reported value.

Concentration is greater than 3 times background level

Concentration is greater than reporting limit

PD - Highest PID Reading

WT - Above the Water Table

J - The identification of the analyte is acceptable;
The reported value is an estimate.

TABLE 6
Subsurface Soil Samples
from the Former Surface Impoundments and
Land Treatment Unit (Borings 4 to 6)

Sample No.	SBA-004-24		SBA-004-WT		SBA-005-PD		SBA-005-WT		SBA-006-24		SBA-006-WT	
	2 to 4 ft interval		12 to 14 ft interval		12 to 14 ft interval		14 to 16 ft interval		2 to 4 ft interval		14 to 16 ft interval	
Analyte	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
% Solids	80.81		81.66		83.19		76.84		83.62		73.62	
Acenaphthene	1.12E6	47300	1.33E6	48300	4590	475	44000	1250	U	234	33100	1360
Benzo (b) fluoranthene	481000	118000	552000	121000	2610	1190	18400	3120	U	584	13400	3390
Benzo (g,h,i) perylene	303000	118000	317000	121000	2510	1190	11400	3120	U	584	4460	3390
Benzo (k) fluoranthene	486000	118000	584000	121000	2010	1190	14700	3120	U	584	10500	3390
1,1'-Biphenyl	257000	118000	455000	121000	1480	1190	15400	3120	U	584	8620	3390
Bis(2-ethylhexyl)phthalate	13100 N	11800	U	12100	U	1190	U	3120	U	584	U	3390
Acenaphthylene	323000	47300	409000	48300	542	475	4060	1250	U	234	1790	1360
Carbazole	5.94E6 J	1.18E6	1.40E7 J	1.21E6	6420 J	1190	25800 J	3120	U	584	10700 J	3390
Chrysene	1.20E6	118000	1.68E6	121000	4510	1190	31300	3120	U	584	22300	3390
Dibenzofuran	1.55E6	118000	2.38E6	1.21E6	5220	1190	52800	3120	U	584	36000	3390
Dibenz (a,h) anthracene	108000	106000	113000	112000	U	1190	3210	3120	U	584	U	3390
2,4-Dimethylphenol	U	11800	22500	12100	U	1190	U	3120	U	584	U	3390
Anthracene	1.66E7	473000	3.87E7	4.83E6	16700 J	475	41100	1250	339	234	30400	1360
Fluoranthene	3.62E6	473000	4.23E6	483000	16900 J	475	133000	12500	520	234	99300	13600
Fluorene	2.85E6	473000	4.81E6	483000	5760	475	65300	12500	U	234	41800	1360
Indeno (1,2,3-cd) pyrene	343000	118000	361000	121000	1800	1190	12000	3120	U	584	5770	3390
2-Methylnaphthalene	1.01E6	47300	1.89E6	48300	4080	475	44500	1250	U	234	21400	1360
2-Methylphenol	U	11800	16100	12100	U	1190	U	3120	U	584	U	3390
3 &/or 4-Methylphenol	13500	11800	36000	12100	U	1190	U	3120	U	584	U	3390
Naphthalene	2.52E6	473000	4.46E6	483000	12100	475	170000	12500	U	234	40700	1360
Phenanthrene	8.33E6	473000	1.19E7	483000	32200 J	4750	273000	12500	549	234	195000	13600
Pyrene	2.47E6	473000	2.58E6	483000	12800	475	98800	12500	393	234	72700	13600
Benzo (a) anthracene	921000	118000	1.09E6	121000	4090	1190	29500	3120	U	584	21800	3390
Benzo (a) pyrene	610000	118000	706000	121000	2760	1190	20200	3120	U	584	14200	3390
Analyte												
Mercury	0.709	0.075	1.75	0.076	U	0.071	U	0.074	U	0.075	U	0.080
Copper	75.5	2.4	104	2.3	7.4	2.3	13.6	2.5	9.1	2.3	12.9	2.5
Iron	15300	3.0	15700	2.9	8580	2.9	16600	3.1	8290	2.9	15600	3.2
Magnesium	2260	17.8	1780	17.4	2850	17.2	9640	18.5	2730	17.5	9620	19.1

TABLE 6
Subsurface Soil Samples
from the Former Surface Impoundments and
Land Treatment Unit (Borings 4 to 6)

Sample No.	SBA-004-24		SBA-004-WT		SBA-005-PD		SBA-005-WT		SBA-006-24		SBA-006-WT	
	2 to 4 ft interval		12 to 14 ft interval		12 to 14 ft interval		14 to 16 ft interval		2 to 4 ft interval		14 to 16 ft interval	
	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Manganese	156	0.6	161	0.6	138	0.6	891	0.6	298	0.6	227 J	0.6
Nickel	17.5	2.4	16.8	2.3	8.7	2.3	26.5	2.5	28.1	2.3	22.4	2.5
Potassium	773	119	569	116	764	115	2110	123	615	116	2310	127
Zinc	150	2.4	205	2.3	21.1	2.3	45.3	2.5	21.6	2.3	51.4	2.5
Barium	246	1.2	325	1.2	87.4	1.1	151	1.2	251	1.2	116	1.3
Calcium	7230	17.8	9100	17.4	1970	17.2	6350	18.5	2420	17.5	24700	19.1
Chromium	13.7	1.2	15.4	1.2	7.1	1.1	15.1	1.2	7.1	1.2	17.8	1.3
Cobalt	10.2	2.4	9.9	2.3	3.0	2.3	10.2	2.5	42.2	2.3	7.1	2.5
Lead	32.4	0.6	48.0	0.6	4.9	0.6	14.0	0.6	14.0	0.6	12.2	0.6
Arsenic	3.5	0.6	5.1	0.6	0.7	0.6	8.3	0.6	2.9	0.6	1.6	0.6
Cyclohexane	735	100	1140	99.8	62.6 J	4.1	928 L	83.5	U	4.0	232	99.5
Methylcyclohexane	1350	100	1970	99.8	172 J	4.1	4010 L	83.5	U	4.0	1020 J	99.5
Ethylbenzene	2090	100	3020	99.8	23.3	4.1	8330 L	83.5	U	4.0	303	99.5
meta-/para-Xylene	12400	200	17200	200	76.9	8.1	18900 L	167	U	8.0	2100 J	199
ortho-Xylene	4830	100	6820	99.8	33.9	4.1	6850 L	83.5	U	4.0	971 J	99.5
Acetone	U	500	261	9.9	21.3 B	8.1	U	835	12.3 B	8.0	UJ	9.2
cis-1,2-Dichloroethene	36.7	5.0	64.1	4.9	U	4.1	330 L	83.5	U	4.0	5.5 L	4.6
Benzene	5570	100	8320	99.8	4.2	4.1	2160 L	83.5	U	4.0	81.9 L	4.6
Toluene	6270	100	9220	99.8	9.1	4.1	8400 L	83.5	U	4.0	18.5 L	4.6
Tetrachloroethene	37.1	5.0	252	99.8	8.3	4.1	60.3 J	4.1	U	4.0	128	99.5
Styrene	2560	100	3900	99.8	4.7	4.1	1590 L	83.5	U	4.0	9.3 L	4.6
Isopropylbenzene	2250	100	3240	99.8	13.1	4.1	1000 L	83.5	U	4.0	176	99.5
1,4-Dichlorobenzene	U	5.0	U	4.9	U	4.1	165 L	83.5	U	4.0	6.4 L	4.6
1,2-Dichlorobenzene	5.8	5.0	152	99.8	12.4	4.1	1640 L	83.5	U	4.0	937 J	99.5

Key:

ug/Kg = Concentrations in micrograms per kilograms

mg/Kg = Concentrations in milligrams per kilogram

RL - Reporting Limit

U - Undetected

L - The identification of the analyte is acceptable; the reported value may be biased low.

The actual value is expected to be greater than the reported value.

Concentration is greater than 3 times background level

J - The identification of the analyte is acceptable;

The reported value is an estimate.

PD - Highest PID Reading

WT - Above the Water Table

concentration above reporting limit

Table 7
Subsurface Soil Samples
from the Former Surface Impoundments and
Land Treatment Unit (Borings 7 to 10)

Sample No.	SBA-007-WT		SBA-008-24		SBA-008-WT		SBA-009-02		SBA-009-WT		SBA-010-PD		SBA-010-WT	
	8 to 10 ft interval		2 to 4 ft interval		10 to 12 ft interval		0 to 2 ft interval		12 to 14 ft interval		6 to 8 ft interval		8 to 10 ft interval	
	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
% Solids	76.78		83.01		76.57		74.53		82.42		81.05		78.71	
Acenaphthene	26300	643	U	237	15300	1100	38900	1230	21500	1140	U	244	U	248
Benzo (b) fluoranthene	7740	1610	U	593	7240	2760	14200	3080	6120	2850	1490	611	U	619
Benzo (g,h,i) perylene	2890	1610	U	593	5210	2760	4210	3080	U	2850	2850	611	U	619
Benzo (k) fluoranthene	6130	1610	U	593	7640	2760	13900	3080	5430	2850	808	611	U	619
Benzyl alcohol	U	1610	U	593	U	2760	U	3080	U	2850	U	611	U	619
1,1'-Biphenyl	6760	1610	U	593	5640	2760	5760	3080	5830	2850	U	611	U	619
Acenaphthylene	2410	643	U	237	U	1100	1240	1230	2060	1140	462	244	U	248
Carbazole	12600 J	1610	U	593	15000 J	2760	14400 J	3080	7780 J	2850	U	611	U	619
Chrysene	13700	1610	U	593	14400	2760	22600	3080	10100	2850	1090	611	U	619
Dibenzofuran	28300	1610	U	593	21400	2760	31300	3080	20800	2850	U	611	U	619
Anthracene	21700	643	U	237	17800	1100	36200	1230	15700	1140	U	244	424	248
Fluoranthene	48700	12900	U	237	51600	1100	96600	12300	35600	1140	U	244	309	248
Fluorene	35700	12900	U	237	24500	1100	51200	1230	29200	1140	U	244	U	248
Indeno (1,2,3-cd) pyrene	3560	1610	U	593	5230	2760	6010	3080	U	2850	3010	611	U	619
2-Methylnaphthalene	22400	643	U	237	14100	1100	24900	1230	18800	1140	U	244	U	248
Naphthalene	85800	12900	U	237	54300	1100	52900	1230	40600	1140	U	244	U	248
Phenanthrene	131000	12900	U	237	113000	11000	179000	12300	88800	11400	U	244	316	248
Phenol	2640	1610	U	593	U	2760	U	3080	U	2850	U	611	U	619
Pyrene	48100	12900	U	237	42500	1100	61200	1230	28600	1140	785	244	302	248
Benzo (a) anthracene	13900	1610	U	593	13000	2760	21900	3080	10400	2850	U	611	U	619
Benzo (a) pyrene	8110	1610	U	593	9540	2760	15300	1230	6280	2850	2600	611	U	619
Analyte														
Mercury	U	0.078	U	0.069	U	0.064	U	0.075	U	0.070	U	0.064	U	0.072
Aluminum	11800	11.7	9090	10.4	9370	11.5	16500	12.5	6360	11.7	7390	11.0	7150	10.9
Copper	16.3	2.3	4.0	2.1	15.3	2.3	10.0	2.5	6.9	2.3	9.0	2.2	11.4	2.2
Iron	16300	2.9	13600	2.6	15900	2.9	20600	3.1	8700	2.9	12000	2.7	9280	2.7
Magnesium	7470	17.5	1120	15.6	6320	17.3	1650	18.7	3170	17.5	3320	16.5	3790	16.3
Manganese	680	0.6	14.7	0.5	501	0.6	83.3	0.6	315	0.6	158	0.5	493	0.5
Nickel	25.2	2.3	3.1	2.1	20.8	2.3	5.2	2.5	10.2	2.3	16.0	2.2	45.8	2.2
Vanadium	29.7	2.3	27.4	2.1	29.6	2.3	34.0	2.5	13.5	2.3	19.6	2.2	15.6	2.2

Table 7
Subsurface Soil Samples
from the Former Surface Impoundments and
Land Treatment Unit (Borings 7 to 10)

Sample No.	SBA-007-WT		SBA-008-24		SBA-008-WT		SBA-009-02		SBA-009-WT		SBA-010-PD		SBA-010-WT	
	8 to 10 ft interval		2 to 4 ft interval		10 to 12 ft interval		0 to 2 ft interval		12 to 14 ft interval		6 to 8 ft interval		8 to 10 ft interval	
	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Zinc	48.2	2.3	8.3	2.1	42.1	2.3	75.5	2.5	22.2	2.3	32.0	2.2	34.2	2.2
Barium	129	1.2	91.5	1.0	140	1.2	94.7	1.2	129	1.2	73.7	1.1	170	1.1
Beryllium	1.0	0.6	U	0.5	0.9	0.6	U	0.6	U	0.6	1.0	0.5	3.6	0.5
Cadmium	0.8	0.6	0.5	0.5	0.9	0.6	0.6	0.6	U	0.6	0.7	0.5	0.5	0.5
Calcium	19100	17.5	1200	15.6	45600	17.3	2180	18.7	6000	17.5	5280	16.5	2660	16.3
Chromium	13.9	1.2	7.8	1.0	13.8	1.2	15.3	1.2	7.8	1.2	9.2	1.1	8.9	1.1
Cobalt	10.7	2.3	U	2.1	8.4	2.3	U	2.5	3.9	2.3	4.1	2.2	10.2	2.2
Lead	14.3	0.6	11.1	0.5	11.4	0.6	16.3	0.6	5.1	0.6	9.9	0.5	12.1	0.5
Arsenic	10.1	0.6	2.1	0.5	10.3	0.6	3.2	0.6	1.6	0.6	5.8	0.5	4.3	0.5
Analyte														
Aroclor-1254	U	23.5	U	21.7	U	23.6	217 J	114	42.9 J	24.1	U	23.1	U	22.9
Cyclohexane	138 L	89.7	U	4.2	75.7 J	4.3	28.5 J	3.8	8.2 J	4.3	U	3.7	U	4.2
Methylcyclohexane	168 L	89.7	U	4.2	247 J	4.3	67.2 J	3.8	17.7 J	4.3	U	3.7	U	4.2
Ethylbenzene	159 L	89.7	U	4.2	152	99.9	27.8	3.8	U	4.3	U	3.7	U	4.2
meta-/para-Xylene	1070 L	179	U	8.4	474	200	33.4	7.5	U	8.6	U	7.4	U	8.3
ortho-Xylene	393 L	89.7	U	4.2	321 J	4.3	20.5	3.8	U	4.3	U	3.7	U	4.2
cis-1,2-Dichloroethene	252 L	89.7	U	4.2	52.0 J	4.8	18.6	3.8	U	4.3	U	3.7	U	4.2
Benzene	218 L	89.7	U	4.2	61.1	4.3	15.6	3.8	U	4.3	U	3.7	U	4.2
Toluene	367 L	89.7	U	4.2	222 J	4.3	6.4	3.8	U	4.3	U	3.7	U	4.2
Vinyl chloride	UJ	89.7	U	4.2	6.4 J	4.8	U	3.8	U	4.3	U	3.7	U	4.2

Key:

ug/Kg = Concentrations in micrograms per kilograms

mg/Kg = Concentrations in milligrams per kilogram

RL - Reporting Limit

U - Undetected

Concentration above reporting limit

Concentration is greater than 3 times background level

PD - Highest PID Reading

WT - Above the Water Table

L - The identification of the analyte is acceptable; reported value may be biased low.

The actual value is expected to be greater than the reported value.

Table 8
Subsurface Soil Samples
from the Former Surface Impoundments and
Land Treatment Unit (Borings 11 to 13)

Analyte	Sample No.	SBA-011-PD		SBA-011-WT		SBA-012-PD		SBA-012-24		SBA-012-WT		SBA-013-PD	
		4 to 6 ft interval		8 to 10 ft interval		0 to 2 ft interval		2 to 4 ft interval		14 to 16 ft interval		6 to 8 ft interval	
		Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
% Solids		75.44		73.34		90.92		85.32		72.80		68.23	
Acenaphthene		15100	626	12600	530	157000	3970	140000	4470	144000	5030	51300	5700
Benzo (b) fluoranthene		5700	1570	3650	1320	263000	99300	200000	112000	168000	126000	54400	14300
Benzo (g,h,i) perylene		1770	1570	1960	1320	158000	99300	97900	11200	85000 J	12600	19200	14300
Benzo (k) fluoranthene		4790	1570	4060	1320	220000	99300	186000	112000	141000	126000	39300	14300
1,1'-Biphenyl		5510	1570	3370	1320	108000	9930	68700	11200	55100	12600	U	1430
Acenaphthylene		706	626	561	530	105000	3970	75100	4470	38200	5030	2840	570
Carbazole		7760 J	1570	4390 J	1320	4.67E6 J	1.99E6	487000 J	112000	680000 J	126000	2450 J	1430
Chrysene		9710	1570	7780	1320	457000	99300	291000	112000	250000	126000	120000	14300
Dibenzofuran		17000	1570	14900	1320	604000	99300	283000	112000	249000	12600	23200	1430
Dibenz (a,h) anthracene		U	1570	U	1320	44100 J	9930	24800	11200	19700 J	12600	6650 J	1430
Anthracene		13800	626	11500	530	1.52E7	794000	1.20E6	44700	1.78E6	50300	137000	5700
Fluoranthene		43300	6260	38400	5300	977000	39700	1.03E6	44700	780000	50300	188000	5700
Fluorene		21500	626	16600	530	1.54E6	39700	401000	44700	369000	50300	96400	5700
Indeno (1,2,3-cd) pyrene		2260	1570	2310	1320	170000	99300	110000	11200	83200 J	12600	23700	14300
2-Methylnaphthalene		17800	626	8780	530	393000	39700	205000	4470	184000	5030	10200	570
Naphthalene		82900	6260	26600	5300	458000	39700	1.87E6	44700	1.05E6	50300	2020	570
Phenanthrene		85900	6260	76200	5300	2.95E6	79400	1.66E6	44700	1.36E6	50300	260000	5700
Pyrene		26800 J	626	26100	530	824000	39700	902000	44700	722000	50300	192000	5700
Benzo (a) anthracene		10100	1570	8010	1320	327000	99300	272000	112000	213000	126000	72900	14300
Benzo (a) pyrene		5920	1570	4420	1320	326000	99300	277000	112000	231000	126000	55600	14300
Analyte													
Mercury		U	0.082	U	0.081	0.469	0.059	0.325	0.065	0.268	0.077	0.082	0.078
Aluminum		11900	12.5	15700	12.4	3700	9.8	1810	10.5	5730	12.2	8210	13.9
Copper		29.6	2.5	23.3	2.5	22.3	2.0	20.8	2.1	10.7	2.4	19.7	2.8

Table 8
Subsurface Soil Samples
from the Former Surface Impoundments and
Land Treatment Unit (Borings 11 to 13)

Analyte	Sample No.	SBA-011-PD		SBA-011-WT		SBA-012-PD		SBA-012-24		SBA-012-WT		SBA-013-PD	
		4 to 6 ft interval		8 to 10 ft interval		0 to 2 ft interval		2 to 4 ft interval		14 to 16 ft interval		6 to 8 ft interval	
		Result	RL	Result	RL	Result	RL	Result	RL	Result	RL	Result	RL
		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Iron		20500	3.1	19900	3.1	14100	2.5	12900	2.6	6060	3.0	12400	3.5
Magnesium		5690	18.7	8640	18.6	1240	14.7	945	15.7	1140	18.3	1730	20.9
Manganese		393 J	0.6	653	0.6	79.2	0.5	253	0.5	108	0.6	210	0.7
Nickel		28.8	2.5	25.5	2.5	7.8	2.0	8.3	2.1	7.9	2.4	12.4	2.8
Potassium		1790	125	2500	124	261	98.0	187	105	310	122	492	139
Sodium		1040	62.3	981	62.1	319	49.0	174	52.3	424	61.0	325	69.7
Vanadium		50.2	2.5	39.6	2.5	17.1	2.0	9.8	2.1	13.4	2.4	21.4	2.8
Zinc		52.8	2.5	66.7	2.5	147	2.0	206	2.1	29.7	2.4	43.6	2.8
Barium		105	1.2	124	1.2	155	1.0	161	1.0	204	1.2	1110	1.4
Beryllium		1.6	0.6	1.3	0.6	U	0.5	U	0.5	0.6	0.6	0.8	0.7
Cadmium		1.0	0.6	1.1	0.6	0.7	0.5	0.7	0.5	U	0.6	U	0.7
Chromium		14.5	1.2	18.3	1.2	4.9	1.0	6.1	1.0	6.4	1.2	15.4	1.4
Cobalt		28.4 J	2.5	18.8	2.5	2.5	2.0	2.6	2.1	5.2	2.4	5.9	2.8
Lead		22.8	0.6	17.3	0.6	22.4	0.5	50.9	0.5	19.3	0.6	20.1	0.7
Arsenic		20.1	0.6	10.4	0.6	8.6	0.5	1.5	0.5	3.4	0.6	3.4	0.7
Analyte													
Cyclohexane		U	4.4	173 L	91.0	104 J	6.8	44.4 J	5.0	UJ	99.6	29.1 J	5.5
Methylcyclohexane		U	4.4	495 L	91.0	96.2 J	6.8	44.2 J	5.0	208	99.6	81.4 J	5.5
Ethylbenzene		U	4.4	299	4.4	46.6 J	6.8	897 L	122	13000	99.6	U	5.5
meta-/para-Xylene		U	8.7	2200 L	182	237 J	13.6	1960 L	244	25800	199	U	10.9
ortho-Xylene		U	4.4	911 L	91.0	67.2 J	6.8	663 L	122	5440	99.6	U	5.5
cis-1,2-Dichloroethene		U	4.4	148 L	91.0	14.7 J	6.8	U	5.0	U	4.9	20.1	5.5
Benzene		U	4.4	235 L	91.0	359 L	115	1730 L	122	2290 J	99.6	11.7	5.5
Toluene		U	4.4	210 L	91.0	186 L	113	1080 L	122	2310	99.6	U	5.5
Tetrachloroethene		U	4.4	1120	91.0	34.1 J	6.8	U	5.0	U	4.9	U	5.5

Key:

ug/Kg = Concentrations in micrograms per kilograms

mg/Kg = Concentrations in milligrams per kilogram

RL - Reporting Limit

U - Undetected

Concentration is greater than 3 times background level

Concentration above reporting limit

PD - Highest PID Reading

WT - Above the Water Table

J - The identification of the analyte is acceptable;

The reported value is an estimate.

L - The identification of the analyte is acceptable; the value may be biased low.

The actual value is expected to be greater than the reported value.

TABLE 9
Groundwater Sample Results Summary

Analyte	Sample No.	SBA-14GW			Louisiana	SBA-15GW		SBA-16GW		SBA-17GW		SBA-15GW	
		Monitor Well #1 (Background) Depth to Water: 13.33 ft			ReCAP	Monitor Well #2 Depth to Water: 5.85 ft		Monitor Well #3 Depth to Water: 8.36 ft		Monitor Well #4 Depth to Water: 16.65 ft		Monitor Well #2 Non-Aqueous portion	
		Result	RL	3xBkg	GW_ss	Result	RL	Result	RL	Result	RL	Result	RL
		µg/L	µg/L	ug/l	ug/l	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/K	µg/K
Acenaphthene		U	1.9	1.9	36.5	508	20.0	U	1.9	U	2.0	1.15E7	1.77E6
Benzo (b) fluoranthene		U	4.8	4.8	4.8	97.1	50.0	U	4.8	U	5.1	4.23E6	442000
Benzo (g,h,i) perylene		U	4.8	4.8	NV	U	50.0	U	4.8	U	5.1	2.26E6	442000
Benzo (k) fluoranthene		U	4.8	4.8	2.5	126	50.0	U	4.8	U	5.1	3.56E6	442000
1,1'-Biphenyl		U	4.8	4.8	30	222	50.0	U	4.8	U	5.1	3.88E6	442000
Acenaphthylene		U	1.9	1.9	100	35.5	20.0	U	1.9	U	2.0	691000	177000
Carbazole		U	4.8	4.8	NV	689 J	50.0	U	4.8	U	5.1	3.20E6 J	442000
Chrysene		U	4.8	4.8	1.6	185	50.0	U	4.8	U	5.1	6.90E6	442000
Dibenzofuran		U	4.8	4.8	10	494	50.0	U	4.8	U	5.1	1.15E7	4.42E6
Dibenz (a,h) anthracene		U	4.8	4.8	2.5	U	50.0	U	4.8	U	5.1	729000	442000
Anthracene		U	1.9	1.9	43	254	20.0	U	1.9	U	2.0	6.00E6	177000
Fluoranthene		U	1.9	1.9	146	736	20.0	U	1.9	U	2.0	2.46E7	1.77E6
Fluorene		U	1.9	1.9	24000	557	20.0	U	1.9	U	2.0	1.47E7	1.77E6
Indeno (1,2,3-cd) pyrene		U	4.8	4.8	3.7	U	50.0	U	4.8	U	5.1	2.29E6	442000
2-Methylnaphthalene		U	1.9	1.9	0.622	899	400	U	1.9	U	2.0	1.39E7	1.77E6
Naphthalene		U	1.9	1.9	10	11200	400	U	1.9	U	2.0	6.49E7	1.77E6
Phenanthrene		U	1.9	1.9	182.5	1860	400	U	1.9	U	2.0	4.90E7	1.77E6
Phenol		U	4.8	4.8	182.5	66.2	50.0	U	4.8	U	5.1	U	442000
Pyrene		U	1.9	1.9	182.5	651	20.0	U	1.9	U	2.0	2.49E7 J	1.77E6
Benzoic acid		U	9.6	9.6	NV	230 J	100	U	9.7	U	10.1	U	885000
Benzo (a) anthracene		U	4.8	4.8	7.8	183	50.0	U	4.8	U	5.1	6.85E6	442000
Benzo (a) pyrene		U	4.8	4.8	0.2	130	50.0	U	4.8	U	5.1	4.93E6	442000

TABLE 9
Groundwater Sample Results Summary

Analyte	Sample No.	SBA-14GW			Louisiana	SBA-15GW		SBA-16GW		SBA-17GW		SBA-15GW	
		Monitor Well #1 (Background) Depth to Water: 13.33 ft			ReCAP	Monitor Well #2 Depth to Water: 5.85 ft		Monitor Well #3 Depth to Water: 8.36 ft		Monitor Well #4 Depth to Water: 16.65 ft		Monitor Well #2 Non-Aqueous portion	
		Result	RL	3xBkg	GW_ss	Result	RL	Result	RL	Result	RL	Result	RL
		µg/L	µg/L	ug/l	ug/l	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/K	µg/K
Analyte		mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
Arsenic		2.4	2.0	7.2	0.01	17.3	2.0	64.5	2.0	U	2.0	NA	NA
Cyanide (total)		U	0.0100	0.0100	0.2	U	0.0100	U	0.0100	U	0.0100	NA	NA
Analyte		ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l	ug/l
Acetone		U	30.0	30.0	NV	15.1 FB,L	10.0	U	30.0	U	30.0	NA	NA
Methyl tert-butyl ether		U	2.0	2.0	20	U	2.0	19.4	2.0	U	2.0	NA	NA
2-Butanone		U	10.0	10.0	NV	5.8 L	5.0	U	10.0	U	10.0	NA	NA
Cyclohexane		U	2.0	2.0	NV	9.9	2.0	U	2.0	U	2.0	NA	NA
Benzene		U	2.0	2.0	5	573	20.0	U	2.0	U	2.0	NA	NA
Methylcyclohexane		U	2.0	2.0	NV	7.7	2.0	U	2.0	U	2.0	NA	NA
Toluene		U	2.0	2.0	1000	12.7	2.0	U	2.0	U	2.0	NA	NA
Ethylbenzene		U	2.0	2.0	NV	95.1	2.0	U	2.0	U	2.0	NA	NA
meta-/para-Xylene		U	4.0	4.0	NV	275	4.0	U	4.0	U	4.0	NA	NA
ortho-Xylene		U	2.0	2.0	NV	54.2	2.0	U	2.0	U	2.0	NA	NA
Isopropylbenzene		U	2.0	2.0	NV	6.2 J	2.0	U	2.0	U	2.0	NA	NA
1,4-Dichlorobenzene		U	2.0	2.0	75	2.3	2.0	U	2.0	U	2.0	NA	NA
1,2-Dichlorobenzene		U	2.0	2.0	600	26.5	2.0	U	2.0	U	2.0	NA	NA

Key:

ug/L = Concentrations in micrograms per Liter

mg/L = Concentrations in milligrams per Liter

L - Identification is acceptable; value biased low

U - Undetected

NA - Not analyzed

Concentration is greater than 3 times background level

Concentration above reporting limit

J - The identification of the analyte is acceptable;

GW - Groundwater

NV - No value assigned

FB -The concentration in sample is less than
10x found in blanks. Presence in sample
therefore suspect.

Table 10
Wetland Sample Results Summary

Analyte	Sample No.	SBA-31SD			SBA-33SD		SBA-39SD	
		Background			Wetland		Wetland	
		RL	Result	3xconc.	Result	RL	Result	RL
		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
% Solids			53.54		73.91		17.25	
Acenaphthene		367	U	367	U	2410	U	1130
Benzo (b) fluoranthene		918	U	918	53,200	30100	U	2820
Benzo (g,h,i) perylene		918	U	918	32,900	30100	U	2820
Benzo (k) fluoranthene		918	U	918	38,600	30100	U	2820
Acenaphthylene		367	U	367	3980	2410	U	1130
Butyl benzyl phthalate		918	U	918	U	6010	U	2820
Carbazole		918	U	918	119,000 J	6010	U	2820
Chrysene		918	U	918	44,400	6010	U	2820
Dibenzofuran		918	U	918	9,960	6010	U	2820
Dibenz (a,h) anthracene		918	U	918	6720 J	6010	U	2820
Anthracene		367	U	367	353,000	12000	U	1130
Fluoranthene		367	U	367	52,200	2410	U	1130
Fluorene		367	U	367	32,000	2410	U	1130
Indeno (1,2,3-cd) pyrene		918	U	918	38300	30100	U	2820
2-Methylnaphthalene		367	U	367	5970	2410	U	1130
Naphthalene		367	U	367	10,600	2410	U	1130
Phenanthrene		367	U	367	61,000	2410	U	1130
Pyrene		367	U	367	62,000	2410	U	1130
Benzo (a) anthracene		918	U	918	27,500	6010	U	2820
Benzo (a) pyrene		918	U	918	50,800	30100	U	2820
Analyte		RL	Result	3xconc.	Result	RL	Result	RL
		mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg	mg/Kg
Mercury		0.057	0.059	0.18	0.146	0.066	0.089	0.052
Aluminum		14.1	5100	15,300	2070	11.7	11900	16.8
Copper		2.8	6.1	18	46.5	2.3	16.0	3.4
Iron		3.5	6030	18,090	16500	2.9	11100	4.2

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Table 10
Wetland Sample Results Summary

Analyte	Sample No.	SBA-31SD			SBA-33SD		SBA-39SD	
		Background			Wetland		Wetland	
		RL	Result	3xconc.	Result	RL	Result	RL
		µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg	µg/Kg
Magnesium		21.2	599	1,797	306	17.5	1900	25.2
Manganese		0.7	141	423	93.0	0.6	414	0.8
Nickel		2.8	3	9	13.3	2.3	8.9	3.4
Potassium		141	420	1,260	218	117	1060	168
Silver		1.4	U	1	U	1.2	U	1.7
Sodium		70.6	U	70.6	U	58.3	483	83.8
Vanadium		2.8	17.3	51.9	10.9	2.3	27.6	3.4
Zinc		2.8	25.5	76.5	198	2.3	85.3	3.4
Barium		1.4	117	351.0	90.1	1.2	307	1.7
Beryllium		0.7	U	0.7	U	0.6	U	0.8
Cadmium		0.7	U	0.7	0.6	0.6	U	0.8
Calcium		21.2	1270	3,810	2320	17.5	4540	25.2
Chromium		1.4	7	21.0	11.1	1.2	11.1	1.7
Cobalt		2.8	U	2.8	2.8	2.3	7.2	3.4
Lead		0.7	14.4	43	22.1	0.6	21.0	0.8
Selenium		0.7	U	0.7	U	0.6	U	0.8
Thallium		0.7	U	0.7	U	0.6	U	0.8
Antimony		0.7	U	0.7	U	0.6	U	0.8
Arsenic		0.7	1.6	4.8	5.0	0.6	3.4	0.8

Key:

ug/Kg = Concentrations in micrograms per kilogram

mg/Kg = Concentrations in milligrams per kilogram

RL - Reporting Limit

concentration above reporting limit

Concentration is greater than 3 times background level

Table 11
Groundwater Population

Target Distance (miles)	Number of Municipal Supply Wells	Number of Domestic Wells	Total Population Served
0 to 0.25	0	7	18.34
>0.25 to 0.50	0	7	18.34
>0.50 to 1	0	5	13.1
>1 to 2	0	20	52.4
>2 to 3	2	96	912.52

Source: Reference 17, 22, 23